

University of Groningen

Determinants of tinnitus' impact in Quality of Life in an outpatient clinic protocol.

Roggerone, Magali

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version

Publisher's PDF, also known as Version of record

Publication date:

2010

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Roggerone, M. (2010). *Determinants of tinnitus' impact in Quality of Life in an outpatient clinic protocol*. s.n.

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.



rijksuniversiteit
 groningen

Wetenschapswinkels



umcg

KNO/UACG

Determinants of tinnitus' impact in Quality of Life in an outpatient clinic protocol.

September 2010

"Ik probeer aan mijn tinnitus te denken als" een goede vriend".

Hij is geen vreemde, maar iemand die ik steeds om me heen heb.

Hij hoort bij mij en heeft geen invloed op wie ik ben.

Als ik zo denk, maakt het de tinnitus dragelijker om mee te leven

Tinnituspatiënt (man, 52 jaar).

*"Tinnitus maakt wel lawaai, maar
het praat niet tegen jou. Het heeft de
betekenis die jij het geeft."*

*"Jij hebt tinnitus maar jij bent niet
jouw tinnitus."*

Maatschappelijk werker tinnitusteam

Magali Roggerone, s1850083

Master Social Psychology, Faculty of Behavioural and Social Sciences, University of Groningen

Supervisors:

Prof. Dr. Arie Dijkstra

University of Groningen, Faculty of Behavioural and Social Sciences

Dr. J. Bouma

University Medical Centre Groningen, SHARE/Science Shop Health Care

Dr. R. Arnold

University Medical Centre Groningen, ENT Department

INDEX

<i>Summary</i>	3
<i>1. Introduction</i>	5
<i>2. Literature review</i>	6
2.1 Definition of tinnitus.....	6
2.1.1 Self-Regulation process.....	7
2.1.2 Quality of Life	9
2.3 Personality factors.....	10
2.3.1 Neuroticism	11
2.3.2 Optimism	12
2.4. Coping factors.....	13
2.4.1 Illness control beliefs	13
2.4.2 Comparisons	14
2.4.2.1 Temporal comparisons in tinnitus.....	15
2.4.2.2 Social comparison in tinnitus.....	15
2.4.3 Acceptance.....	16
<i>3. The present study</i>	18
3.1 The outpatient clinic	18
3.1.1 Assessment	18
3.1.2 Recommendations.....	19
3.2 Hypotheses	19
<i>4. Method</i>	21
4.1 Procedure.....	21
4.2 Questionnaires	21
4.3 Data Analysis.....	24
<i>5. Results</i>	27
5.1 Hypothesis 1.a: Changes in patients' Quality of Life.....	29
5.2 Hypothesis 1.b: Recommendations from the outpatient clinic and changes in Quality of Life.....	32
5.3 Hypothesis 2.a: Impact of personality characteristics on Quality of Life.....	37
5.4 Hypothesis 2.b: Impact of coping strategies in Quality of Life.	39
<i>6. Conclusion and Discussion</i>	42
6.1 Quality of Life in the outpatient clinic protocol.....	42
6.1.1 Hypothesis 1.a) Did the perception of tinnitus and the Quality of Life of the outpatient clinic patients change?	42
6.1.2. Hypothesis 1.b) Did the recommendations the tinnitus patients got at the outpatient clinic, and that they followed lead to improvements in their Quality of Life? (hypothesis 1.b)	44
6.2 Quality of Life, personality and coping factors.....	45
6.2.1 Hypothesis 2.a) Do high optimism and low neuroticism bring higher Quality of Life?	45
6.2.2 Hypothesis 2.b) Do better acceptance, stronger control beliefs and lower use of pre-tinnitus temporal comparisons relate to a higher Quality of Life?	46
6.2.3 Personality and coping factors.....	48
6.3 About the study.....	48
<i>7. Bibliography</i>	52
<i>8. Appendix</i>	60
8.1 T2 Questionnaire	60

Summary

Background: Tinnitus is a chronic condition that can cause substantial handicap for certain patients and affects their Quality of Life. Our study focuses on Quality of Life for the tinnitus patients who participated in the protocol of an outpatient clinic established at the ENT department of the UMCG. First, we looked at the interventions done at the outpatient clinic (changes in Quality of Life, audiological and psycho-social recommendations given to the patients and the effects of the time interval between both assessments) and second, we investigated the contribution of personality (neuroticism and optimism) and coping (acceptance, illness control beliefs, temporal and social comparison) factors to Quality of Life. We based our research on the Self-Regulation Model of Leventhal that shows a process of adaptation to chronic illness.

Method: We performed an uncontrolled prospective study, in which 260 consecutive patients were contacted and administered two assessments: self-report questionnaires were filled in at T1 during the first visit at the tinnitus outpatient clinic and at T2 when we contacted the patients for this follow-up study: 174 patients were included in our study. The time between T1 and T2 was 6 months to 2 years. We measured the tinnitus handicap perception (THI), anxiety and depression (HADS), Quality of Life: social functioning, mental health and general health (RAND-36), optimism (LOT), neuroticism (EPQ), illness control beliefs (PCHS), acceptance (ICQ), and temporal and social comparison (STCS).

Results: We did not find any significant changes in Quality of Life between T1 and T2 except for a deterioration in social functioning with a mean difference of 4.8(21.5), ($t=2.936$, $p<0.01$). However, there were significant improvements in THI scores in the group who received both audiological and psycho-social counselling with a mean difference of 11.5(9.8), ($t=3.3$, $p<0.05$) and significant improvements in the group who received psycho-social counselling in the HADS anxiety scores with a mean difference of 3.1 (4.3), ($t=2.2$, $p=0.05$). There was no effect of time between T1 and T2 on the Quality of Life' scores.

For the personality factors: Optimism explained 40.7% of the variance of mental health and 24.9% of general health. Neuroticism explained 22.8% of the THI scores and 21.2% of social functioning. For the personality factors: Acceptance explained 36.2 % of the variance of mental health. Temporal comparisons explained 62.5 % of the THI scores and 34.4 % of social functioning. Illness control beliefs explained 43.9 % of general health.

Taken together, both personality and coping factors explained a substantial amount of variance of Quality of Life, with a high contribution of coping factors (34.4% to 62.5%).

Conclusion: Overall, the total group of tinnitus patients' Quality of Life did not significantly change between T1 and T2. Due to a long waiting list before admission to the outpatient clinic, changes in Quality of Life may have occurred before the measurement made at the clinic. We found some satisfaction in the recommendations people got at the clinic. There were also some improvements in QoL scores for the patients who received psycho-social counselling and those who had both listening devices and counselling related to tinnitus.

Furthermore, we found in this study that taken together, both personality factors and coping strategies had significant roles in Quality of Life even though coping factors had a higher contribution. Tinnitus management could then focus more on helping people adapt their coping strategies to their chronic condition in order to lead them to more acceptance, which seems to be the best coping strategy, especially for a good mental health.

1. Introduction

We all know what tinnitus is or what some people refer to as “ringing in the ears”. We all experienced it at some point after being exposed to loud noise for a while. However, the noise does not stay and we do not imagine it possible to become constant. For tinnitus patients, this burden became permanent. Although there are many possible causes and many forms (sounds) of tinnitus, what is common to each tinnitus is that it can not be heard by others and that there are no external sources of sound responsible for it. All tinnitus patients describe a stage of panic when they realized that the noise will remain. We often hear them say “I was desperate then”. When tinnitus appears, people go to their general practitioner (or ENT specialist) for help. However, they are faced with a problem which does not have any medical solution yet and in most cases they have to learn to live with it. For many patients, the fact that there is no treatment available is difficult to handle and they do not accept to be left without having found the answers they were hoping for. They all describe the lack of understanding they feel from many professionals but especially from their environment. Overall, especially at the beginning and for certain people years after they developed tinnitus, patients describe it as an important change in their lives, a daily nuisance. Some feel that tinnitus took control over their daily activities. The impact of tinnitus people describe in their daily life is actually not related to the severity of tinnitus (the loudness and the kind of sound) (Lindberg, Melin & Littkent, 1987).

Since tinnitus can be an important problem in someone's life, it is necessary to help patients deal with their tinnitus. As a result, a multidisciplinary team (doctors, audiologists and psychologists) from a tinnitus outpatient clinic created a protocol. The main idea from this protocol is that tinnitus can be managed even though it can not be cured. The patients are referred to this clinic in order for those professionals to find the best way to deal with tinnitus. Our study focuses on the group of patients who consulted this tinnitus outpatient clinic. Six months to two years after this visit to the clinic, we sent those patients a follow-up questionnaire to measure whether their Quality of Life had changed in the course of time. We decided to investigate the individual differences of the patients who benefited from this protocol. In this study, we mainly focus on psychosocial aspects like personality and coping factors. We looked at those factors in the process of adaptation to a chronic condition like described in the Self-Regulation Model of Leventhal (Leventhal & Nerenz, 1982).

2. Literature review

2.1 Definition of tinnitus

Tinnitus is an increasing hearing problem in the present society with 10 to 30 % of the adult population suffering from it (Heller, 2000). Chronic tinnitus can be defined as the perception of a continuous or intermittent sound in the absence of external acoustic stimulation (Baldo, Doree, Lazzarini, Molin & McFerran, 2009). When tinnitus can not be heard by others, it is called subjective. In contrast, objective tinnitus can be detected during an examination (Baldo et al., 2009). It can be caused by vascular tumours, malformations (blood vessel enlargement) and contractions of the palatal muscles (Martinez-Devesa, Waddell, Perera, Theodoulou, 2009). We focus here on subjective tinnitus that is similar to a “false perception” (Baldo et al., 2009, p. 2), which has been put in parallel with phantom-pain. Tinnitus can consist of different kinds of sounds: it can be a high or a low pitch, a buzzing, clicking sound, pulsatile or composed of many other complex sounds (Baldo et al., 2009). It can be perceived in one or both ears or even outside the body (Baldo et al., 2009). Tinnitus can fluctuate in intensity or stay constant during the day (Schwaber, 2003). It has a very subjective character and each patient hears and experiences his own tinnitus differently.

Tinnitus is often associated with hearing loss. The brain normally receives stimuli or sounds through the auditory nerve and when hearing is impaired, the auditory cortex is less activated. The brain tries to compensate the lack of stimuli by auto-regulating the stimulation it does not get externally. It creates an internal activity that generates a sound that can only be heard by the patient himself (Moffat, Adjout, Gallego, Thai-Van, Collet & Noreña, 2009). The risk of developing tinnitus is approximately 50% when somebody already has a hearing impairment (Mc Shane, Hyde & Alberti, 1987) and therefore, the aging population is more affected. However, a patient can develop tinnitus without any hearing loss and the degree of hearing impairment does not match the severity of tinnitus (Baldo et al., 2009). The cause of tinnitus remains difficult to find and each case remains unique, since it is a subjective experience. Patients often experience their tinnitus as being louder than the actual sound matched to it in audiological tests (Moller, 2000).

Tinnitus not only causes physical symptoms but can lead to a wide range of complaints in several areas of functioning. People experience different reactions to it and it may have mild to severe consequences for people's lives and different impacts of tinnitus on daily activities (Heller, 2000). Even though tinnitus is highly related to hearing problems, the loudness of tinnitus only has a low influence on the impact of tinnitus (Lindberg et al., 1987). Audiological

problems account for only 6% of the variance of Quality of Life variance compared to 61% for psychological variables (Erlandsson & Hallberg, 2000). In 40 to 50% of the cases, patients report psychological distress and perception of handicap (Bauch, Lynn, Williams, Mellon & Weaver, 2003). In the whole population of patients suffering from tinnitus, only 4 to 5 % are severely affected by it (Heller, 2003). In general, many tinnitus patients tend to experience tension and therefore almost 57% of the patients have sleeping problems and experience high fatigue (Coles, 1984; Tyler and Bakker, 1983). More than a third of the patients experiences concentration problems and more than 4% experiences problems with functioning at work (Tyler et Baker, 1983). Tinnitus patients also show a decrease in social activities (15.3% due to loud noise and 11.1% due to silence), experience difficulties in their social contacts (15.3%) and experience family problems (6.9 %) (Tyler et al., 1983). Psychological distress can be expressed by feelings of insecurity and anxiety, which are shared by 16.6% of the respondents in the study of Tyler and Baker (1983). Depression is also frequent in one third to the half of the patients (Erlandsson et al., 2000).

Although tinnitus is getting more and more common, it stays poorly understood. Many studies have focused on getting more insight into the development of tinnitus and in finding a cure for this condition. However, up to now, no successful solution has been found. Nevertheless, many patients think that their symptoms are caused by a medical condition for which a treatment exists. Apart from objective tinnitus, which sometimes can be treated, in about 95% of the cases, tinnitus is subjective (Hulshof, 1985). For these patients no medical treatment is available and they have to become aware that tinnitus is not a life-threatening condition and the symptoms can be managed without medical treatment (Lockwood, Salvi & Burkard, 2002). However, since tinnitus may cause difficulties in many domains of functioning, tinnitus management needs a multidisciplinary approach in which all these domains should be addressed in order to adequately help patients (Erlandsson & al., 2000).

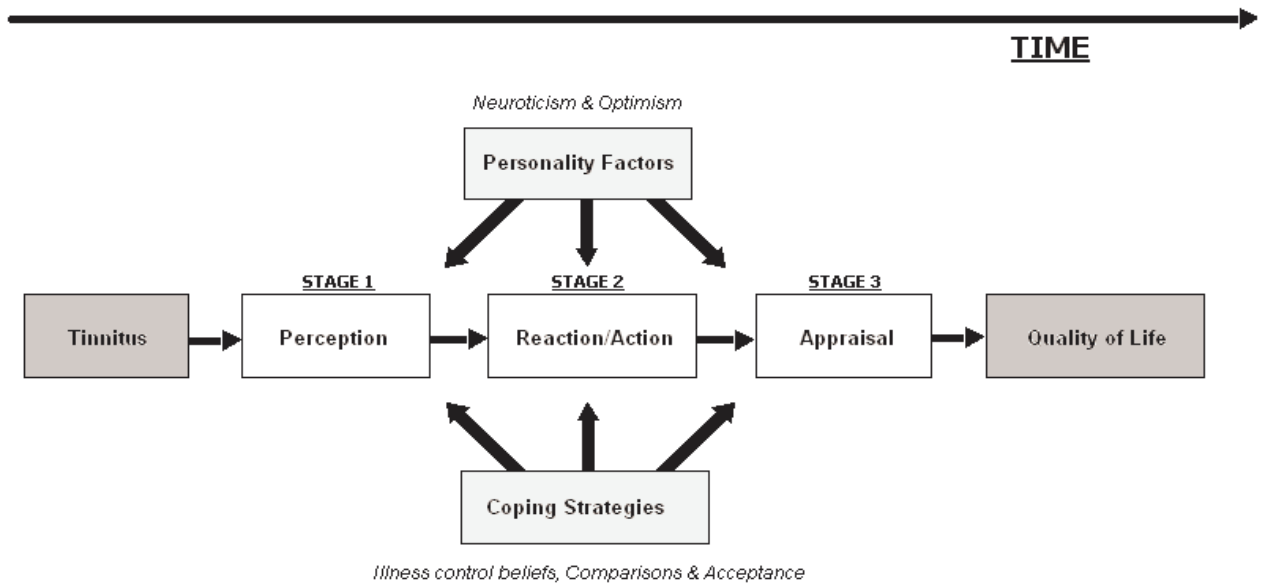
2.1.1 Self-Regulation process

In this study, we focus on psychological adaptation to tinnitus and we use the Self-Regulation Model (Leventhal, Leventhal & Contrada, 1998) to describe the personality and coping factors involved in this process of adaptation. Self-Regulation consists of three stages. First, the nature of the health threat (tinnitus) provokes different reactions, since every illness has its own features. Then, “the representation of the disease threat (a knowledge base that defines the properties of a disease), shapes the selection of procedures for prevention, cure and control, and establishes goals for treatment” (Leventhal & Colman, 1997, p. 760). The patient tries to make

sense of the situation emotionally, what he tries to understand what is happening to him (perception). In the second stage, the patient will react to this threat by thinking of possible ways to manage the problem and the emotions he is facing. He will therefore develop an action plan. Those actions or reactions refer to a person's way of coping with problems. It is important to mention that there is a difference between cognitive reaction and behavioural action. We put those two in parallel with emotion and problem focused coping. We expect that people in a chronic condition can better use emotion-focused coping in the stage two of Self-Regulation. Emotional coping is the cognitive regulation of stressful emotions when there is no external control over the situation possible (Folkman & Lazarus, 1980). Problem-focused coping is more adapted when it possible to proactively do something about a stressful situation. In the third stage, the patient appraises his coping decisions and responses to see if they fit their initial goal (appraisal). As a result he evaluates how satisfied he is with his life and the choices he made to reach this stadium of well-being.

We also concentrate on factors interacting between tinnitus and the resulting Quality of Life. We look at “antecedent conditions such as personality traits that interact with other conditions in producing [the] outcome” of Quality of Life (Folkman & Lazarus, 1988, p. 311). This influence is important since “the self-regulation process is embedded within the self and, thus, is affected by personality dispositions and interacts with one's self-system and self-identity” (Benyamini, 2009, p. 64). Other factors, like coping, are “generated in the encounter and it changes the original relationship between the antecedent and the outcome variable” (Folkman et al., 1988, p. 311). Personality and coping factors are “procedures or rules of thought and action designed to more fully define, control, cure and prevent a disease threat, and procedures to control the emotional reactions elicited by the threat” (Leventhal et al., 1997, p. 760).

Schema 1 Self-Regulation Model



This model illustrates the process of adaptation to tinnitus that takes place in time. We notice here the importance of personality factors and coping strategies and the impact they have in the different stadia of the process of Regulation. We will especially stress the two first stages since the third stage depends on choices of coping strategies in the second stage. This process leads to what has been called Quality of Life.

2.1.2 Quality of Life

The most well known idea referring to Quality of Life is the concept of hedony or well-being (social, physical and mental). It emphasizes the way people look at life rather than to what things objectively are (Fagerlind, Ring, Brülde, Feltelius & Lindblad, 2010). Quality of Life (QoL) is based on an emotional state coming from “an individual’s evaluation of the level of his or her functioning within a number of life domains, and the value or importance assigned to these domains” (Leventhal et al., 1997). Someone evaluates and compares how he functions in one domain to another domain based on “both [his or her] individual [...] assessment of his or her personal experience within a variety of domains and the integration of these observations into an overall judgment using a decision rule yet unspecified” (Leventhal et al., 1997, p. 756). QoL has been classified in four domains: (1) Physical and occupational function; (2) Psychological states; (3) Social interactions and (4) Somatic sensations (Schipper et al., 1996; Leventhal et al., 1997). The judgment process thus involves domain assessments. People first evaluate their performance, what they are capable to do and their functioning related to several tasks. Then they look at what

they feel (affects) and how they think (cognitions). Based on those three components, the different domains take on different importance, and one can be perceived as better than the other (Leventhal et al., 1997). However, all domains are interrelated and when people experience changes in their lives, they not only assess the QoL in the domain concerned by the change, and they also look at the effects in the other domains.

Originally tinnitus affects one domain: health (somatic sensations). Rapidly this domain has an extensive impact on other domains like social and psychological functioning. It overlaps with the “individual’s view of his life situation,” (own age, marital situation and responsibility in a family) and with “the individual’s emotional reactions to these contextual meanings” (Leventhal & al., 1997, p. 754). The context of Health Related QoL is defined by “the individual’s common-sense representation of the disease and treatment” he is facing (is the illness life threatening and is it curable). At the beginning of a chronic condition like tinnitus, people experience new somatic sensations they have to define. It is a subjective assessment that is not related to any real physical or cognitive function. Quality of Life is determined by a cognitive process, which takes time, affected by the judgments people make. As we mentioned in the previous paragraph, people undergo a process to assess what they feel and determine their QoL. There are different determinants of QoL also indicated by the Self-Regulation Model: “(1) how patients attribute symptoms, emotions, and functioning to disease or treatment (stage 1: perception); (2) how individuals interpret and assign meaning to physical and emotional sensations (stage 2: reaction/action); and (3) how patients integrate their assessments into overall Quality of Life judgments (stage 3: appraisal)” (Leventhal et al., 1997, p. 753). It means that different people will interpret the same symptoms in rather different ways (Leventhal et al., 1997). We expect that an active participation in one’s health will be reflected in the whole process of Self-Regulation, which at the end (and in time) will determine the QoL judgment.

2.3 Personality factors

Personality characteristics are used to describe as many psychological and behavioural variations in humans as possible. Personality factors are associated with a number of important health behaviours and outcomes like coping and adaptation to illness (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007). We here refer to traits like neuroticism and optimism, which differ between persons but remain relatively stable over time. They can be defined as habitual patterns of behaviour, thought, and emotion, which influence behaviour (Kassin, 2003). Traits are not temporary behaviours or feelings like states. They do not depend on the situation or a person’s motives at a particular time (SparkNotes, 2005). Personality traits are presented in the Big Five

(Fiske, 1949; McCrae & Costa, 1987). They are classified in basic dimensions labelled as Extraversion (vs. Introversion), Agreeableness (vs. Antagonism), Conscientiousness (vs. Indirectedness), Neuroticism (vs. Emotional stability) and Openness to experience (vs. narrow-minded). Highly extraverted people tend to be social and assertive. Agreeable people are caring, cooperative and good natured. People scoring high on conscientiousness are responsible and achievement oriented. Openness to experience refers to broad-mindedness and curiosity about both the inner and outer world. Finally neurotic people tend to be insecure, are susceptible to psychological distress and cope less well with stress (Barrick, Mount, & Judge, 2001). The Big Five gives a complete conceptualization of adaptive and maladaptive personality characteristics (Fruyt, 2002).

It has been shown in other studies that personality variables can play a role in the perception of tinnitus and its consequences (House, 1981). In this study, we focus on neuroticism since it is an important dimension of personality in the context of self-assessed health. It has been proven that people scoring high on neuroticism score are prone to experience more distress (Costa & McCrae, 1987) and this emotional state makes it more difficult for them to adapt to an illness (Vassend et al., 1999). While neuroticism is thought to have a negative effect on health behaviour, optimism has been found to have an opposite effect (Rasmussen, Wrosch, Scheier, & Carver, 2006) and therefore are complementary and both important determinants of QoL in tinnitus patients.

2.3.1 Neuroticism

This personality dimension is expressed as “individual differences in the tendency to experience negative, distressing emotions” (Costa et al., 1987, p. 301). The traits that characterize neuroticism represent negative emotional states related to aversive moods states (like anger, guilt, helplessness and depression) (Watson & Pennebaker, 1989). People scoring high on neuroticism are relatively anxious, introspective and focus on failures, mistakes or disappointments. They are also more distressed about their medical condition and the way they see their condition makes them react more strongly to it. There is a mutual impact both from emotional distress and subjective physical self-assessment (Vassend et al., 1999). We expect neurotic people to focus their attention on their tinnitus and every characteristic it has.

In the Self-Regulation process, neuroticism has an important influence on the perception of the illness (stage 1). Neuroticism is characterized by maladjustment and emotional instability that are not related to an objective situation (people look at how they feel about facts and not how the latter really are). There is a positive correlation between perceived tinnitus severity and

neuroticism (Bartels, 2008) and therefore, highly neurotic people describe higher levels of handicap caused by tinnitus than others (Zachariae et al., 2000). Their label of the threat is negative as well as their perspective of the future. It also makes them to aggravate illness outcomes and duration.

How someone is dealing with stress is partly caused by vulnerability and protective factors (Lazarus & Folkman, 1984). Neuroticism is considered to be an illness vulnerability factor since neurotic people do not think objectively about handling their health problems. This personality trait counter works with illness protective factors like coping resources (Smith, 1992; Smith & Christensen, 1992; Smith & Gallo, 1994; Smith & Pope, 1990). Neuroticism is therefore an important factor in Self-Regulation since people have no confidence in their adaptive resources and in their own control (Leventhal et al., 1998). We assume that people with high neuroticism do not take on any adequate action to cope with tinnitus in the stage 2 of Self-Regulation since they do not assess the situation objectively to use any effective coping strategy. We expect them not to be able to see any changes in stage 3 in contrast to stage 1. How patients interpret their tinnitus, the illness perception is at the same time a cause and a consequence of negative affect. It has a direct impact on the outcome of the Self-Regulation process and the assessment of Quality of Life.

2.3.2 Optimism

Optimism is largely defined by the explanatory style of an individual, which tells how he explains the causes of bad events. An important idea of optimism is the way people interpret what happened to them lead them to create expectancies from the situation they are in.

Optimism is opposed to neuroticism in the way people perceive tinnitus in different perspectives in the first stage of Self-Regulation. Optimistic people explain bad events as happening irregularly, specific to a situation and with external causes (Peterson et al., 2001). When facing difficulty, they do not feel victimized and want to take control over the situation. They focus on the action they can take and on what the future could bring. In the first stage of Self-Regulation, people create positive or negative expectancies about possible outcomes of their problem (Carver & Scheier, 2001). The way people anticipate the future implies that people will commit to what they believe is possible.

In the second stage of Self-Regulation, optimistic people react and behave based on the representations they formed in stage one. If they think of tinnitus as relatively manageable condition, they will feel a certain control over their decision what to do for their self-care (Fournier, de Ridder & Bensing, 2002). The level of doubt makes people more or less inclined to

put efforts to take action (stage two of Self-Regulation). It appears that it is better to be confident in facing the challenge of a good life with tinnitus without seeing it as a catastrophe. People high in optimism are supposed to have productive behaviours and make active efforts to get/stay well (Carver et al., 2003). Optimistic people will consequently adapt more quickly to adversity and will recover emotionally more quickly from difficult episodes (Glenn et al. 2001).

People organize their lives toward goals on a hierarchical basis from the most important goals and how much confidence they have in the goal's attainability. In adversity, it is common to reevaluate goals and anti-goals (Carver et al. 2001) as in the third stage of Self-Regulation. Goals give meaning to people's lives and it becomes important to readjust them when facing failure or loss like when having a chronic condition. To successfully reengage in different goals, people must first disengage from unattainable goals (Rasmussen et al., 2006). We expect optimistic people to reclassify their priorities and try to focus on other important goals or on readjusted goals whereas neurotic people might more easily withdraw from any efforts and disengage without committing to any other alternative goal. Everyone needs a reason to go forward after experiencing difficulty and therefore put their constructive energy in other purposes that still matter (Rasmussen et al., 2006) and keep trying and take new action (stage three of Self-Regulation). It seems that optimism would help patients to go through Self-Regulation in an optimal way. Self-care and perseverance are the keys to a higher well-being.

2.4. Coping factors

2.4.1 Illness control beliefs

Illness beliefs are composed of two important concepts: illness representations and self-efficacy. Illness representation is based on patients' past and present experiences with illness and is organized in a complex memory (Lau-Walker, 2007). It helps someone process new information he finds relevant (Lau-Walker, Cowie, & Roughton, 2008; Thuné-Boyle, Myers & Newman, 2006). In this first stage of Self-Regulation, people create cognitive representations (illness perception) (Benyamini, 2009) based on five components (Henderson & Hagger, 2009; Lau-Walker et al., 2008). The *cause(1)* is the belief about factors/conditions causing the problem. *Control(2)* is whether people expect their condition to be curable and the degree of control they feel they have (Griva, Jayasena, Davenport, Harrison, & Newman, 2009). *Timeline(3)* is the assessment of the course, the duration and the nature of the condition. *Consequences(4)* are the effects the health condition has on life. *Identity(5)* shows how people experience their symptoms and label them to explain what their problem exactly is (Lau-Walker, 2007). In the end, the

perception of the condition (how seriously ill people think they are) plays a more important role than the actual illness severity (Marks, Richardson, Graham & Levine, 1986).

The second important concept with respect to illness control beliefs is Self efficacy (Bandura 1997). It refers to someone's judgment about his capacity to obtain what he aims at (Griva, Myers & Newman. 2000) thus his idea of intern control. It does "not refer to beliefs about the extent to which one can or cannot control events" (Marks et al., 1986, p. 443). In the second stage two of Self-Regulation, we see two kinds of controls beliefs: intern (as related to self-efficacy) versus extern (where people put control on external factors) that lead to different reactions (Rotter, 1954). The relationship between actions and outcomes has a functional value for a person as a base for his future decisions. Intern control beliefs are highly related to the idea of illness management. People with internal control beliefs usually think that outcomes will be consistent with their behaviours. People with extern control beliefs do not feel that what they do will influence the outcomes but that external sources like chance, fate or others are responsible for what will happen to them.

We see here that the beliefs formed at the beginning (illness representation) are really important because the initial ideas lead people to place their control beliefs internally or externally, stay confident or not about their health condition (Lau-Walker, 2007) and decide what kind of coping response they will use (stage two) (Lau-Walker et al., 2008). As we mentioned, we expect people to cope by an adjustment in their emotional reactions to a particular difficulty (emotions focused coping) as opposed to actual behavioural changes (problem-focused coping) (Gordon, Feldman, Crose & Schoen, 2002). Behaviours based on illness beliefs are expected to remain stable as long as the condition does not fluctuate (Marks et al., 1986). When there are changes, there must be a new appraisal of the situation, which explains why Self-Regulation is a process constantly revaluated as in the third stage of Self-Regulation (Benyamini, 2009).

2.4.2 Comparisons

Comparisons are important both at stage 1 and 2 of Self-Regulation when personal perceptions lead someone to choose his own way of coping. There are two main kinds of comparisons: social and temporal comparisons. Festinger's social comparison theory (Festinger, 1954) is the basis of temporal comparison first described by Albert (1977). The link between those two theories is quite strong, that is why it seemed important for us to measure both kinds of comparisons in tinnitus' patients. In social comparison theory, the comparison occurs between different individuals at one point in time whereas in temporal comparison theory, the process is

intrapersonal and the self-description happens between one or several former moments and now (Albert, 1977).

2.4.2.1 Temporal comparisons in tinnitus

Temporal comparison is “a drive to provide and maintain a sense of an enduring (as well as coherent and integrated) self-identity over time and to evaluate and adjust to perceived changes in aspects of the self over time” (Albert, 1977, p. 488). The sense of self is the best indicator for the individual to feel continuity and coherence in the memory: yesterday, today and tomorrow, the individual remains about the same person (Albert, 1977). When people are confronted with a condition such as tinnitus, the whole sense of self is disrupted and the person experiences a discrepancy between past and present. A patient might try to define who he is now referring to the person he was before he had tinnitus (Broemer, Grabowski, Gebauer, Ermeli & Diehl, 2008). People interpret “their own personal changes” (McFarland et al., 2000, p. 328) according to what they believe about their illness (stage one of Self-Regulation). A condition such as tinnitus could either be considered as irrelevant for the person and therefore be rejected from an individual's self-concept or be regarded as very important (Albert, 1977). Self-perceived changes are the product of misperceptions built over the years and even over a few months (Tennen & Affleck, 2009). Tinnitus draws a line between the life before tinnitus and the life after. It can lead people to weight the negative and the positive aspects of this change. Memory transforms certain past events to embellish them. It is not related to the fact that people do have the capacities to remember correctly (Broemer et al., 2008) but more to the fact they feel threatened and hope to go back to their previous state. We expect temporal comparisons to have negative consequences on Quality of Life since people do not concentrate on their “fundamental self” (Albert, 1977), what remains “the same” even if they go through tinnitus. Temporal comparisons are a way of coping with chronic condition that does not help people to handle difficulties but lead them to refuse the present situation because the past one seemed better. In contrast, we think that social comparisons might help people not to refer to criteria from the past and learn how to define themselves based on new norms (Dijkstra, Borland & Buunk, 2007) in order to deal with present difficulties.

2.4.2.2 Social comparison in tinnitus

Patients, especially at the beginning of their condition can interpret tinnitus as unfair and often do not use comparisons in a helpful way (stage two of Self-Regulation). It seems more beneficial for an individual to have references from the present that are not too dissimilar from their situation,

such as other tinnitus patients. These kinds of comparisons are social comparisons. To maintain a positive self-image, people can choose who they want to compare themselves to (Spini, Clémence & Ghisletta, 2007). People select the persons and attributes they want to be compared with, to have a favourable self-assessment. By doing this, they get a positive feedback with respect to their own situation (even though it is subjective) (Rickabaugh & Tomlinson-Keasey, 1997). A good coping strategy will “enable the maintenance of a sense of self-worth in a threatening situation” (Spini et al., 2007, p. 80). A better process is to compare “one’s own state of health to that of individuals in a worse state” (Spini et al., 2007, p. 80), which is called downward social comparison. On the other hand, upward comparison can also be beneficial, in the sense that people will identify with others. They could be more motivated to use others as role models and to follow their example. Identification can also be also more helpful and bring a sense of reality associated to the present that is not found in the past (Albert, 1977). At the second stage of Self-Regulation, people could use comparisons as a coping strategy to integrate new information about themselves to their self-identity. We expect social comparisons to be a good coping strategy that help people to have higher Quality of Life. These comparisons would actually be a protective social cognitive bias that contributes to a more positive mental health (Rickabaugh et al., 1997).

2.4.3 Acceptance

In this study, we considered acceptance as a coping strategy. It can be linked to emotion-focused coping since in certain chronic health condition, people have only limited possibilities to take on external actions (especially when there are not medical treatment possible). They need to learn to internally manage their stressful emotions and demands by psychological adjustment. Emotion-focused coping is used when the situation is perceived as threatening or harmful and considered as resistant to positive changes (Lazarus et al., 1984). This coping focuses on reducing the emotional distress (Franks et al., 2006). However certain authors found that acceptance should rather be defined as an illness cognition that leads to higher coping capacities (Karademas, Tsagaraki & Lambrou, 2009). McCracken et al. add that acceptance “is more than a mental exercise and not simply a decision or belief” (McCracken et al., 2003. p198). Acceptance is linked to emotional intelligence, a higher understanding and management of emotion (Schutte, Noble, Malouff & Bhullar, 2009). In a chronic condition, the optimal way to psychologically adjust, is to accept the changes which “can lead to control, connectedness, openness, vigilance and, ultimately, integrating a chronic condition into one’s lifestyle” (Zauszniewski, McDonald, Krafcik, Chung, Dobratz & Downe-Wamboldt, 2002, p. 730).

Acceptance rather could be seen as the outcome of the behavioural and cognitive approach to manage illness and its consequences in order to restore good Quality of Life (Hayes & Wilson, 1994). First, patients dealing with a chronic condition have to psychologically adjust by accepting the changes and resulting limitations in one's life (Dijkstra, Buunk, Tóth & Jager, 2008). Acceptance results from the adaptation of someone's values. This shows a whole process where people learn to perceive their illness and themselves with new criteria (Dembo, Leviton & Wright, 1956). The notion of identity and self-image that is really important in the Self-Regulation process plays an important role in acceptance. Everyone builds a self-concept of who they are and who they would be. To be satisfied with one's life, the self-image of someone and the desired or ideal-self he wishes to be, have to be congruent (Dijkstra et al., 2008). The physical reality of a chronic condition brings some limitations into someone's life and this person can accept those restrictions if they are not perceived as such. People create new prototype, new definition of who they are even if they have an illness and therefore transform previous ideas or prejudices they could have had about chronically ill people (Dijkstra et al., 2008). In the end, their condition belongs to who they are. Optimally people redirect their attention towards positive and meaningful things and undergo new activities. As we explained earlier, people take on new goals (not illness-related) and at the same time transform their values (Dembo et al., 1956).

When people have accepted a condition like tinnitus, it does not imply the fact they tolerate it. It is not a way to control or minimize the reality of their condition but it shows that the emotions, sensations, the new illness experience has taken a positive meaning. (Karademas et al., 2009). At this point, people do not avoid talking or thinking about their condition, but do not want to make any changes or do not undergo any more treatments. They do not attempt to find a solution nor a cause to their tinnitus. We expect people to have a higher Quality of Life (positive psychological and physical consequences) when they use acceptance (Dahlbeck & Lightsey, 2008). Acceptance "give[s] [...] life continuity and meaning despite the changes" (Corbin & Strauss 1987, p. 251).

3. The present study

In the present study, we reviewed the work established by an outpatient clinic in the ENT department of the UMCG in order to evaluate the multidisciplinary approach this team uses. The complete assessment they make (medical, audiological and psycho-social) allows them to guide the patients and to offer them possibilities to manage their tinnitus (when there are options available). More than two years after first patients were included in this protocol, we contacted the tinnitus patients who visited this clinic to evaluate their Quality of Life, their personal characteristics as well as the help they got in a longer term.

In the next paragraph (3.1), we describe the outpatient clinic and its functioning. The goal of this outpatient clinic intervention is to help tinnitus patient to maintain a Quality of Life as high as possible. Even though we could not establish nor evaluate the effects of the outpatient clinic (since our study was not randomized), we looked at some possible effects it could have had. This study is aimed at developing multidisciplinary approaches to better understand the characteristics of the patients the professionals should focus on to thereby improve the consultations, make better assessments and offer better tinnitus management. In paragraph 3.2 we made hypotheses based on the review of literature and the impressions we got during the diverse assessments at the outpatient clinic.

3.1 The outpatient clinic

3.1.1 Assessment

In order to enhance tinnitus management, a multidisciplinary tinnitus outpatient clinic was started in 2007 in the ENT-department of the University Medical Centre in Groningen. A multidisciplinary team (of doctors, audiologists, psychologists and social workers) was composed to diagnose tinnitus and assess patients' functioning in different aspects of their lives. The first visit of the patients consists of psychosocial, audiological and medical examinations. The ENT-specialist examines the possible causes of tinnitus. He checks if there are any abnormalities in the ear or if tinnitus was caused by a certain illness. He verifies the anatomy of the ear for any damages, lesions or tumours that could explain tinnitus. He also examines the tinnitus features, medical history, the physical conditions and medication. The audiologist checks what the patient's hearing capacities (pure tone audiometry and speech understanding) are and estimates the nature and the loudness of tinnitus by asking the patients what sounds resemble their tinnitus most. A social worker assesses the impact of tinnitus on Quality of Life of the patients and evaluates whether there is psychological distress. Furthermore, education on tinnitus

is given, adapted to the patient's specific characteristics and situation. Educating the patients is an important tool in the management of tinnitus (Lockwood et al., 2002). With better understanding, people manage to keep a better Quality of Life. In parallel to the assessments in the outpatient clinic, the patient is asked to fill in two questionnaires. Those questionnaires contribute to the diagnosis of the characteristics of tinnitus and potential underlying disorders, as well as assessing the consequences of tinnitus for daily life. The professionals also fill in a joint questionnaire that remains in the patient's file. Taken together, the professional opinions and the answers to the questionnaires help to make a multidisciplinary assessment. The second visit to the outpatient clinic is composed of a few additional audiological examinations in order to assess the loudness perception of sounds by the patients and whether tinnitus can be (partially) inhibited by presenting the patients with a stimulus sound. Then, in a final consultation with an audiologist and a psychologist, the patient receives recommendations based on the conclusions drawn by all the professionals he was examined by.

3.1.2 Recommendations

Based on this multidisciplinary assessment, the patient is advised with respect to tinnitus management and possible treatments. If the patients suffer from mild to severe hearing loss, they are often advised to try assistive listening devices, which can in some cases inhibit tinnitus by sending more sounds/signal to the brain. Most patients are invited to attend an informative seminar to learn more about what the current knowledge about tinnitus is. Some patients need further psycho-social counselling or treatment by the social worker of the ENT-department or by a psychologist or psychiatrist in a specialised mental health centre. If possible and beneficial for them, they join a group lead by a social worker and a psychologist or get extra individual sessions from the ENT social worker. If this kind of assistance is not sufficient, it is often advised to seek help from a health psychologist outside the ENT department. Since the UMCG is a university hospital there are also experimental protocols done and patients can be solicited to take part. Furthermore, in some cases physiotherapy can be helpful for the people really tensed. They learn to release the stress and relax their body.

3.2 Hypotheses

In the first part of this study, we hypothesized that the perception of tinnitus and the Quality of Life of the patients, who participated in the tinnitus protocol, have improved between their visit to the outpatient and the moment of our study. We also thought that the longest the time interval between the visit and the study, the highest the improvement in Quality of Life we would find

(hypothesis 1.a). Then, we thought that recommendations the tinnitus patients got at the outpatient clinic, and that they followed, led to improvements in their Quality of Life thus were adapted to their needs (hypothesis 1.b).

In a second part, we assessed whether patient characteristics had an influence on how the patients adapted to their tinnitus. We studied how the personality factors and cognitions (how people think of their illness) played a role in (predicting) the changes of patient's well being. First, we hypothesized that the above expected desired changes in Quality of Life were especially large in patients low on neuroticism and with high optimism (hypothesis 2.a). Second, we estimated the importance of coping resources like comparison, acceptance and illness control beliefs. We thought that better acceptance, strong control beliefs and lower use of pre-tinnitus temporal comparisons (and more social comparisons) were related to less perception of handicap due to tinnitus and higher Quality of Life (hypothesis 2.b).

4. Method

4.1 Procedure

We collected all the data of this study within the group of patients who consulted the outpatient clinic. First, before the consultation, patients received a questionnaire with general questions concerning their tinnitus characteristics by mail and were asked to take it with them to the first visit. During the first visit, patients filled in a second questionnaire (time-1: T1) meant to assess the impact of tinnitus on daily functioning.

In the present study, we administered an additional questionnaire (time-2: T2) to the patients who visited the tinnitus outpatient clinic at latest 6 months prior to the study. We calculated the sample size of our study based on the score on the Tinnitus Handicap Inventory (Newman, 1996), which as our main outcome parameter gives the central effect size. We used a power analysis to calculate that with a power of 80%, 200 patients were needed to detect a mean difference of 5 (and a standard deviation of 16.3) on the THI between both assessments. We based our findings on THI scores of 97 tinnitus patients at T1, with a mean of 37 and a standard deviation of 21.

Based on the assumption that about 75% of the contacted patients would reply to our request, we contacted 260 consecutive patients who visited the tinnitus outpatient clinic between August 2007 and September 2009. Those patients received written information explaining the purpose of the study together with an informed consent letter (see Appendix 8.1 and 8.2). They were asked to fill in a T2 questionnaire (see Appendix 8.3), that we compared with the T1 questionnaire.

4.2 Questionnaires

The following self-report questionnaires were used:

Questionnaire (T1)

- a) **Tinnitus Handicap Inventory.** The THI was designed by Newman in 1996 for the measurement of impact of tinnitus on daily functioning. It consists of 25 questions on a 3 point Likert scale (yes= 4 point, sometimes=2 points and no=0 point). There is a total scale formed of three subscales: the functional effects of tinnitus (11 items), the emotional response to tinnitus (9 items) and the catastrophic response to tinnitus (5 items). The maximum score is 100 (25 questions * 4). Scores 0-16 show no handicap, 18-36 indicate mild handicap, 38-56 signify moderate handicap and 58-100 mean severe handicap.
- b) **Rand-36.** It measures the health-related Quality of Life. The Rand-36 is practically similar to the MOS-SF36 from Ware and Sherbourne (1992). The test consist on of 36 items, 8 subscales:

physical functioning (10 items), social functioning (2 items), role limitation (physical problems) (4 items), role limitations (emotional problems) (3 items), mental health (5 items), vitality (4 items), pain (2 items) and General Health perception (1 item). The scores are afterwards transformed; there is a coded system to use to get to a hundred point scale score. A high score means a good medical condition.

In this study 3 subscales were used: Social functioning, mental health and general health perception.

c) **Hospital Anxiety & Depression Scale.** The HADS by Zigmond in 1983 assesses depression and anxiety via self-report. There are two subscales, an anxiety scale (7 items) and a depression scale (7 items). The answers are ranged on a 4-point Likert scale from 0 to 3. Both scales range from 0 to 21. Scores from 0 to 7 show neither anxiety nor depression. There is a cut-off score of > 8 for both subscales to quantify patients with likely anxiety and depressive symptoms (8 to 10 points indicates a possibility and 11 to 21 points shows a strong indication of depression and/or anxiety).

d) **Eysenck Personality Questionnaire** measures psychoticism, neuroticism, extraversion and social desirability (Eysenck & Eysenck, 1991; Sanderman, Arrindell, Ranchor, Eysenck & Eysenck, 1995). We only used the dimension measuring neuroticism and extraversion. There are two tests EPQ-N (neuroticism) and EPQ-E (extraversion) which both consist of 12 items with a response scale of 1 (yes) and 0 (no). It gives a final score from 0 tot 12 showing a low to high general tendency to over-responsiveness and over-reactivity (EPQ-N) and a low to high level of sociability, positive affect and need for external stimulation (EPQ-E). In this study we only used the neuroticism subscale.

e) **Perceived Health Competence Scale (PHCS)** was designed to assess the degree to which individuals feel capable of effectively managing their health (Smith et al., 1995). The eight items of the PHCS combine both outcome and behavioural expectancies. The answers are ranged on a 5 points Likert scale (completely agree to completely disagree). Scores from each item are averaged to produce an overall score (8-40), with higher values indicating a stronger perception of health competence.

Questionnaire (T2) was composed of:

a) **Pre-treatment assessment questionnaire: THI, Rand-36** (Social functioning, mental health and general health perception), **HADS, and PHCS.**

Neuroticism was only assessed at T1 since this personality trait is thought to be rather stable and doesn't change (neither increase nor decrease) with age in adulthood (Costa, Mc Crae & Holland, 1984).

b) **Life Orientation Test (LOT)** (Scheier & Carver, 1985) assesses personal differences in optimism and pessimism. The LOT consists of eight items: 4 items are framed in an optimistic manner, 4 items in a pessimistic manner. Respondents indicate on a 5 point Likert scale to what extent they agree or disagree. The scores range from 8 to 40. The authors categorized the levels of optimism from very high (30 points and higher), high (26-29), on average (19-25), low (15-18), to very low (14 or lower).

c) **Illness Cognition Questionnaire (ICQ)**. The ICQ (Evers, Kraaimaat, Lankveld, van Jongen, Jacobs & Bijlsma, (2001) measures three illness cognitions: helplessness (emphasis on the aversive meaning of a disease), acceptance (a strategy to way to diminish the aversive meaning) and perceived disease benefits (a strategy of adding a positive meaning to the disease). Each subscale consists of 6 items rated on 4-point Likert scale to indicate agreement (1= not at all, 2=somewhat, 3= to a large extent, 4= completely). The scores range from 6–24 per subscale. A high score means high acceptance, high perceived illness benefits and/or high helplessness.

d) **Social and temporal comparison scales (STCS)** assess the use of temporal and social comparisons. The test is composed 7 items and people answer the questionnaire on a 5 point Likert scales (strongly agree to strongly disagree) and is composed of two subscales: Social comparison (3 items) and temporal comparison (4 items). The social comparison scale goes from 3 to 15. The scores from 3 to 6 show low use, 7 to 11 show average use and 12 to 15 show high use of social comparisons. The temporal comparison scale goes from 4 to 20. The scores from 4 to 9 show low use, 10 to 14 show average use and 15 to 20 show high use of temporal comparison.

This test has been constructed with 3 items from Iowa-Netherlands Comparison Orientation Measure (Gibbons & Buunk, 1999) (Social Comparison Scale), with 2 items from Dijkstra et Borland (2003) and with 3 items based on and adapted from Dijkstra et Borland as well (Temporal Comparison Scale).

e) Questions about the different recommendations received and followed on 5 point Likert scales (strongly agree to strongly disagree):

- 1) informative seminar to learn more about tinnitus; 2) assistive listening devices; 3) experimental protocol; 4) group lead by a social worker and a psychologist ; 5) individual

counselling from the ENT social worker ; 6) counselling by a health psychologist outside the ENT department; 7) Physiotherapy.

We looked here at the satisfaction the patients experienced from the recommendations. We measured the help they felt they received, the concentration, the fatigue (and sleeping pattern), their ability to rest and the attention given to tinnitus.

4.3 Data Analysis

We used SPSS 16 for the analyses. First, we started with a description of the group of patients we contacted for our study. We used descriptive statistics (frequencies and chi-square test) to describe the patients who participated and those who did not.

For the first two hypotheses, we mainly looked at the protocol established at the outpatient clinic and we compared the two assessments. We first wanted to see how effective the intervention at the outpatient clinic was (Hypothesis 1.a). The scores on the questionnaires (THI, HADS and RAND-36) were compared between T1 and T2 to measure possible changes in tinnitus' patient's lives. We therefore used a paired t-test. We also looked at the changes between T1 and T2 when patients are classified into subcategories based on their score-range (4.2 Questionnaires). Those categories have been made depending on the two scores (T1 & T2) the patients got on the different tests (THI, HADS, RAND-36). As we saw in the previous paragraph (4.2 Questionnaires), patients are assessed differently for each test and the scores take on different meaning depending on their score range. For example, a patient' score on the THI could be between 18-36 at T1, which assesses "mild handicap". The score of the same patient at T2 now lies between 38-56, which shows "moderate handicap". In order to categorise the patients into the same subgroups, we created three subcategories common to all the tests we used according to the different outcome measures. The changes of scores between T1 and T2 determined in which of the 3 subcategories we put a patient: deterioration in scores, no change or improvements of the scores. From our example, the change shows worsening, that is why the patient is put in the category of the patients whose scores deteriorated. We therefore used a chi-square test to see how many patients changed from a one category to another, putting those patients in another score-category. We used this methodology again in the next hypothesis (hypothesis 1.b)

To verify whether time influenced the data, we looked at different time-intervals between T1 and T2. We wanted to see whether there was a relationship between the patients' scores on Quality of Life and their time of admission to the tinnitus consultation. We therefore divided them into 4 subgroups: 1) those who visited the outpatient between 08.2007 and 01.2008; 2) those between

02.2008 and 07.2008; 3) those between 08.2008 and 01.2009; and 4) those between 02.2009 and 09.2009. We used a one-way between-groups ANOVA.

Second (Hypothesis 1.b), we created three subgroups of patients according to the kind of recommendations they got (audiological, psycho-social and both) and looked at the characteristics (sex, age, marital and work statuses) of patients and their Quality of Life' scores [Tinnitus handicap perception (THI), depression, anxiety (HADS), social functioning, mental and general health subscales (RAND-36)]. We first used a paired t-test to study the changes between T1 and T2 in the THI, HADS and RAND-36 scores per type of advices. Then, with a chi-square test, we described how the patients' scores on the THI, HADS and RAND-36 changed from score-range categories as explained for the previous hypothesis. In order to explain certain results from the chi-square tests, we looked at the group of patients who had audiological recommendation and compared T1 and T2 means of the HADS and Mental health subscale of the RAND-36. We looked at the changes in means within and between groups and therefore we used a one-way between-groups ANOVA.

Then, the two following hypotheses focus on personal characteristics that could explain Quality of Life scores at T2. We assessed the link between personality characteristics and QoL (Hypothesis 2.a). We performed a multiple regression analysis of neuroticism (Eysenck) and optimism (LOT) as independent variables and QoL [Tinnitus handicap perception (THI), social functioning, mental and general health subscales (RAND-36)].

Finally we assessed the link between coping techniques [Illness control beliefs (PHCS), Acceptance (ICQ subscale) and Temporal/Social Comparison (STCS)] and QoL as independent variable (THI and Rand 36 as in the previous hypothesis) with a multiple regression analysis (Hypothesis 2.b). Finally we also used a stepwise multiple regression to look at both personality factors (neuroticism and optimism) and coping factors (illness control beliefs, acceptance and temporal comparison)

For the multiple regression analyses we used SPSS 16 which allowed us to check the assumptions related to the variables used.

-Multicollinearity:

We checked that the independent variables showed some relationships (not too high) with the dependent variable before presenting the results in a multiple regression table.

-Outliers

We checked outliers through the Mahalanobis distances and the critical chi-square associated. There were no unusual outliers' cases to be reported.

-Normality

We checked whether the distributions were normal with the help of the Kolmogorov-Smirnov test. The tests were not significant indicating normality. We could therefore use parametric tests.

-Linearity

Normal P-P Plots show that the points are reasonably on a straight diagonal line from bottom left to top right.

-Homoscedasticity

We used a Levene's test to check the spread of the residuals. The variance looked quite constant at each level of the predictors' variables.

-Independence of the residuals.

In the Scatterplot of the standardized residuals, we checked that the residuals were about rectangularly distributed, with most of the scores concentrated in the centre (along the 0 point). There was no systematic pattern of the residuals.

5. Results

To begin our results section, we first give an overview of our research sample. We wanted to control the representativity of our sample, whether it differed from the other patients of the outpatient clinic or from other samples from other studies. In table 5.1 we present the characteristics of the 174 patients who participated in our study (age, sex, marital status, work status) as well as for the other 86 patients who were not included in the study.

Table 5.1 Demographic background of the patients contacted for this study

	Patients included	Patients excluded⁽¹⁾
Total	N=174	N=86
SEX %		
Man	68.2	62.2
Woman	31.8	37.8
AGE %		%
23-44	10.4	27.1
45-65	69.4	50.5
More than 66	20.2	22.4
MARITAL STATUS %		
Married or living together	84.8	78.8
Single ⁽²⁾	11.1	16.5
Others ⁽³⁾	4.1	4.7
WORK STATUS % ⁽⁴⁾		
Employed	56.1	52.3
Unemployed	4	8.2
Others ⁽⁵⁾	61.8	53.6

⁽¹⁾ Patients who refused to participate, patients who did not reply and patients who changed addresses.

⁽²⁾ No partner, divorced or widowed.

⁽³⁾ In a relationship but not living together.

⁽⁴⁾ Patients could give more than one answer to the question "work status".

⁽⁵⁾ Students or volunteer workers.

In table 5.1 we see that there was no significant difference in demographic backgrounds variables between the patients who participated in our study and those who did not. The two groups show a higher percentage of men than women, and for most of the patients, their age was in the range 45-65. More than half of them had work and a high majority of them had partners. Our sample did not diverge from the rest of the patients not included in the study.

Furthermore, we wanted to see whether the included and excluded patients showed different QoL at T1. We therefore compared the two groups of patients' scores measured when they visited the outpatient clinic to see if there were differences in THI and HADS scores that could distinguish the two groups from each other.

Table 5.2 Differences in THI and HADS scores at T1 between the excluded and included patients.

\bar{x} (SD)	Patients included N=174	Patients excluded N=86
Tinnitus handicap (<i>THI</i>)	37.9 (21.4)	41.1 (24.0)
Depression (<i>HADS</i>)	4.9 (4.3)	5.8 (5.1)
Anxiety (<i>HADS</i>)	5.6 (4.0)	6.5 (4.8)

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (two tailed).

As for the demographic variables, there were no significant differences between the two groups at T1 in tinnitus handicap perception, neither in depression nor in anxiety. Consequently, the respondents of our study did not importantly differ from the patients who did not participate in the study on their Quality of Life.

5.1 Hypothesis 1.a: Changes in patients' Quality of Life

The most important idea of our first hypothesis was to see if the QoL changed between T1 and T2 and what kind of changes took place in time. Were there significant improvements or deteriorations between T1 and T2?

We looked at those changes within the group between T1 and T2 and we show in table 5.3 the results we found with respect to changes in patients' scores on the two measurements.

Table 5.2 Changes in Quality of Life scores between T1-T2 (N=170)

\bar{x} (SD)	T1	T2
Tinnitus handicap (<i>THI</i>)	37.1 (21.3)	35.0 (21.8)
Depression (<i>HADS</i>)	4.8 (4.3)	5.2 (4.5)
Anxiety (<i>HADS</i>)	6.5 (3.9)	5.5 (4.0)
Social functioning (<i>RAND-36</i>)	76.7 (24.5)	71.9 (25.9)**
Mental health (<i>RAND-36</i>)	67.9 (17.7)	66.9 (18.7)
General health (<i>RAND-36</i>)	63.4 (18.6)	63.0 (20.1)

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (two tailed).

There was a significant decrease in scores for subscale Social Functioning from T1 to T2 with a mean difference of 4.8(21.5), ($t = 2.936$, $p < 0.01$). The scores of the patients deteriorated, which indicates that their social functioning became worse. For the rest of the tests, we did not find any significant changes in QoL between the two measurements. In general, the Quality of the patients did not undergo important changes between T1 and T2.

Even though the differences were not significant except in social functioning, we wanted to better investigate the changes that occurred between T1 and T2 and look at the percentages of patients whose Quality of Life either got worse, better or remained stable. As explained in the method (4.3 Data Analysis), the patients were categorized at T1 on their scores on the tests (see paragraph 4.2 Questionnaire).

We look in table 5.4 at the different score range categories between T1 and T2 to know whether the patients' scores show some kind of changes (improvement, no change or deterioration).

Table 5.4 Changes in subcategory between T1 and T2

T1-T2	Deterioration % of patients	No change % of patients	Improvement % of patients
Tinnitus handicap (<i>THI</i>)	16.5	56.3	27.2
Depression (<i>HADS</i>)	10.1	76.6	13.3
Anxiety (<i>HADS</i>)	16.2	72.0	11.8
Social functioning (<i>RAND-36</i>)	24.1	62.9	13.0
Mental health (<i>RAND-36</i>)	25.7	48.6	25.7
General health (<i>RAND-36</i>)	21.3	53.8	24.9

The majority of the patients' scores on Quality of Life remained about the same between T1 and T2 with high percentages between 48.6 and 76.6%.

The percentages of deterioration and improvements in scores were quite evenly spread, except for the THI scores with a higher percentage of improvement and social functioning with a higher percentage of deterioration, which corresponds to what we found in the previous table (5.3). The scores confirm the idea that the Quality did not change between T1 and T2 and that about as many patients improved as deteriorated in their QoL.

To look at the effect of time on QoL, we looked at the scores at T2 when controlling the different T1. Table 5.5 shows differences in test scores over 4 groups defined by the time of their first visit in the outpatient clinic (T1). We here compared the changes between T1 and T2 in test scores for the 4 groups.

Table 5.5: 4 groups of patients measured at different T1 and changes in QoL at T2

		Group 1 ₍₁₎ N=47	Group 2 ₍₂₎ N=35	Group 3 ₍₃₎ N=50	Group 4 ₍₄₎ N=42
Tinnitus handicap (<i>THI</i>)	T1 \bar{x} (SD)	35.5 (18.7)	33.1 (20.6)	43.7 (24.4)	37.8 (19.8)
	T2 \bar{x} (SD)	33.9 (19.0)	32.8 (20.7)	41.4 (26.2)	29.9 (18.1)
Depression (<i>HADS</i>)	T1 \bar{x} (SD)	5.0 (3.6)	4.6 (3.8)	5.6 (5.4)	4.0 (3.8)
	T2 \bar{x} (SD)	4.7 (3.6)	4.8 (4.3)	6.1 (5.8)	5.1 (3.8)
Anxiety (<i>HADS</i>)	T1 \bar{x} (SD)	5.6 (3.8)	5.3 (2.8)	6.5 (5.0)	5.1 (3.4)
	T2 \bar{x} (SD)	4.7 (3.2)	5.6 (4.2)	6.3 (4.7)	5.5 (4.1)
Social functioning (<i>RAND-36</i>)	T1 \bar{x} (SD)	81.1 (18.5)	78.9 (24.3)	70.7 (30.2)	77.0 (22.4)
	T2 \bar{x} (SD)	77.4 (19.1)	73.8 (29.6)	67 (29.5)	70.2 (24.5)
Mental Health (<i>RAND-36</i>)	T1 \bar{x} (SD)	67.1 (16.8)	67.7 (14.7)	66.8 (22.6)	69.5 (15.3)
	T2 \bar{x} (SD)	69.7 (14.1)	66.7 (18.6)	62.4 (23.4)	68.5 (16.3)
General health (<i>RAND-36</i>)	T1 \bar{x} (SD)	57.9 (17.5)	63.6 (18.3)	66.7 (17.9)	64.3 (20.7)
	T2 \bar{x} (SD)	62.9 (19.3)	65.1 (19.1)	60.6 (20.8)	63.9 (21.1)

⁽¹⁾ T1 between 08.2007 and 01.2008

⁽²⁾ T1 between 02.2008 and 07.2008

⁽³⁾ T1 between 08.2008 and 01.2009

⁽⁴⁾ T1 between 02.2009 and 09.2009

Overall, there were no significant differences between groups on the THI, HADS and 3 subscales of the RAND-36 (social functioning, mental health and general health subscale) between T1 and T2. The time intervals (6 months to more than two years) between T1 and T2 did not create any difference thus no significant changes between the 4 groups of patients in their Quality of Life scores.

Time did not show to make any significant differences in QoL tests neither with the measurements at T1 taken during the whole period neither with separate periods of T1 measurements.

5.2 Hypothesis 1.b: Recommendations from the outpatient clinic and changes in Quality of Life

Patients received two important recommendations depending on the assessment made by the multidisciplinary team. We wanted to evaluate whether the help or recommendations the tinnitus patients got at the outpatient clinic were consistent with certain patients' needs. Did patients follow the recommendations given and were they helpful?

We did not look at the Informative seminar since it was advised to almost all the patients. We only concentrated on the assistive listening devices and the psycho-social counselling (group and individual counselling from the ENT social worker and individual counselling by a health psychologist).

We made thus three groups:

- the patients who were advised to try listening devices (D)
- the patients who were advised to have psycho social counselling (P)
- the patients who were advised both listening devices and psycho social counselling (DP)

In the table 5.6, we showed information (number, age, and how satisfied they were with the recommendations they followed) about the 130 patients from the 174 in our sample.

Table 5.6 Percentages and characteristics of the patients and the corresponding audiological and/or psycho-social recommendations they got and followed

	TOTAL	D	P	DP
Recommendations given T1	N=130 100 %	N=90 69.2 %	N=15 11.5 %	N=25 19.2 %
Recommendations followed T2 ⁽¹⁾	N=81 62.3 %	N=62 68.8%	N=10 66.6%	N=9 36 %
N=129 <i>Characteristics</i>				
Age (T2) \bar{x} (SD)	57.6 (10.6)	59.8 (8.8)	44.1 (12.2)	55.2 (9.2)
Satisfaction /5 ⁽²⁾ \bar{x} (SD)		2.5 (1.1)	2.9 (0.7)	3.5 (0.8)

⁽¹⁾ the percentages of recommendations followed are referred to the number of recommendations given.

⁽²⁾ the patients rated the satisfaction they experienced after following the recommendations.

The table 5.6 shows the number of patients who followed the recommendations is lower than the number of the patients who received them. However for the groups P and D the majority of patients followed the recommendations they got. Over the total of recommendations given, assistive listening devices were more often recommended than psycho-social counselling. Both P and DP groups were quite small in comparison to the D group.

The patients of groups D and DP were on average of the same age (55.2 & 59.8) whereas the P group consisted of patients who were younger (44.1).

Over the three groups, we see that the satisfaction was about average: 2.5 to 3.5 (the minimum score (low satisfaction) was 1 and the maximum score (high satisfaction) was 5). Patients indicated improvements in their lives (concentration, fatigue (and sleeping pattern), ability to rest and attention given to tinnitus) thanks to the recommendations they followed. For the group DP, the satisfaction was the highest.

To further investigate the changes in Quality of Life for the different groups of patients, we looked at the differences between T1 and T2 in tinnitus handicap perception, depression and anxiety. In table 5.7, we show the THI and HADS scores per subgroup of patients at T1 and T2.

Table 5.7 THI and HADS scores at T1 and T2 per subgroups of recommendations

	D		P		DP	
	N=90		N=10		N=9	
	T1	T2	T1	T2	T1	T2
Tinnitus handicap (THI) \bar{x} (SD)	34.9 (19.8)	36.9 (21.7)	64.8 (17.3)	53.1 (21.4)	49.5 (14.2)	38.0 (15.6)*
Depression (HADS) \bar{x} (SD)	4.5 (3.8)	5.5 (4.4)	8.8 (5.1)	7.2 (4.1)	5.8 (3.9)	5.8 (3.9)
Anxiety (HADS) \bar{x} (SD)	4.9 (3.2)	5.3 (3.7)	11.0 (4.6)	7.9 (5.1)*	5.5 (3.2)	5.0 (2.6)

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (two tailed).

In table 5.7, there were no significant differences between T1 and T2 in HADS depression scores within the 3 groups. There were however significant differences in THI scores in the DP group with mean difference of 11.5(9.8), ($t=3.3$, $p < 0.05$). In the P group, the HADS anxiety scores had a mean difference of 3.1 (4.3), ($t=2.2$, $p=0.05$). We also noticed a difference between T1 and T2 in the P group in THI scores with a mean difference of 11.7 (17.3), ($t=2.0$, $p=0.075$), even though this difference was not significant. Those differences in the P and DP groups showed lower average scores in THI and HADS anxiety. It showed that people in those two groups experienced less tinnitus handicap perception and less anxiety. However patients in the group D did not show any change between T1 and T2. The use of listening devices did not lead to any improvements in comparison to the groups P and DP who received counselling.

Furthermore, (in table 5.8a) we focused on the potential effects of the different recommendations between T1 and T2 in the different groups on the tests (THI, HADS and RAND-36).

Table 5.8a Changes in subcategories between T1-T2 per subgroup of recommendations

	Deterioration%	No change%	Improvement%
Listening devices (D) N= 62			
Tinnitus handicap (<i>THI</i>)	23.6	58.2	18.2
Depression (<i>HADS</i>)	13.6	77.6	8.6
Anxiety (<i>HADS</i>)	8.5	71.2	20.3
Social functioning (<i>RAND-36</i>)	19.6	68.9	11.5
Mental health (<i>RAND-36</i>)	42.4	40.7	16.9
General health (<i>RAND-36</i>)	28.8	52.5	28.8
Psycho-social counselling (P) N= 10			
Tinnitus handicap (<i>THI</i>)	0	62.5	37.5
Depression (<i>HADS</i>)	28.5	42.9	28.6
Anxiety (<i>HADS</i>)	0	50	50
Social functioning (<i>RAND-36</i>)	20	80	0
Mental health (<i>RAND-36</i>)	10	60	30
General health (<i>RAND-36</i>)	20	60	20
Devices + counselling (DP) N= 9			
Tinnitus handicap (<i>THI</i>)	0	42.8	57.2
Depression (<i>HADS</i>)	0	100	0
Anxiety (<i>HADS</i>)	0	87.5	12.5
Social functioning (<i>RAND-36</i>)	11.1	66.7	22.2
Mental health (<i>RAND-36</i>)	11.1	66.7	22.2
General health (<i>RAND-36</i>)	11.1	55.6	33.3

In table 5.8a, for most of the recommendations and for most of the tests, a majority of the patients' scores remained the same between T1 and T2.

For the patients who got psycho-social counselling (P), the percentages of scores which remained the same went from 42.9 to 80%. For anxiety as many patients' scores remained the same as improved and for depression and as many patients improved than worsened.

In the group of patients who received both recommendations, the percentages of the scores which remained the same went up to 100%. There was no deterioration in scores in THI, HADS anxiety and depression and the RAND-36 subscales showed higher percentages of improvements than deterioration.

For the people who got assistive listening devices (D), we noticed that there were high percentages of patients whose scores remained the same (up to 71.2%). However, a high percentage of patients' scores deteriorated for the subscale Mental Health (42.4%). This subscale is highly related to the HADS test. Nevertheless, the scores of the HADS show high percentage of people who remained the same and for the HADS Anxiety subscale, we see that more patients improved than deteriorated.

To better understand this high percentage of deterioration in scores for mental health in the group D, we compared (in table 5.7b) the D patients whose scores deteriorated with the D patients whose scores improved or remained the same.

Table 5.8b Mental Health in D: Changes between T1 and T2 in RAND-36 mental health, HADS depression and anxiety.

	D (patients whose scores remained or improved in mental health) N=36		D (patients whose scores deteriorated in mental health) N=25	
	T1	T2	T1	T2
Mental health (RAND- 36) \bar{x} (SD)	67.9 (18.8)	71.1 (19.2)	80.0 (7.9) †	61.6 (13.5)***
Depression (HADS) \bar{x} (SD)	5.4 (4.3)	5.0 (4.4)	3.0 (2.5) †	6.2 (4.4)**
Anxiety (HADS) \bar{x} (SD)	5.7 (3.7)	4.9 (3.5)*	3.9 (1.8) †	6.1 (3.9)**

WITHIN-GROUPS: T1-T2. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (two tailed).

BETWEEN-GROUPS: T1-T1 & T2-T2. † $p < 0.05$, †† $p < 0.01$, ††† $p < 0.001$ (two tailed).

The D patients whose scores deteriorated showed significant differences between T1 and T2 (WITHIN-GROUPS) in all three tests (HADS depression and anxiety, RAND-36 mental health) which is consistent since those three tests measure about the same variables. Those patients got more depressed and anxious which shows a worsening in their mental health.

We also see also that at T1 (BETWEEN-GROUPS) the two D groups had significantly different scores in Mental Health, depression and anxiety. The D patients whose scores deteriorated showed rather good scores in the three tests. They had at T1 better mental health, lower depression and lower anxiety compared to the D group whose scores remained or improved.

At T2 (BETWEEN-GROUPS), the difference between the two D groups was not significant any apart from HADS anxiety. They showed more comparable scores on mental health and depression. The D group who scores deteriorated still showed at T2 higher anxiety than the rest of the D group.

5.3 Hypothesis 2.a: Impact of personality characteristics on Quality of Life.

We looked at the influence of optimism and neuroticism on the way patients perceived their Quality of Life at T2. In the following tables we show which personality characteristics had a significant role in explaining the variance of the THI and Rand-36 scores. First, we looked at the correlations between optimism, neuroticism and QoL (Table 5.9).

Table 5.9 Correlation of optimism and neuroticism with QoL

	Tinnitus handicap (<i>THI</i>)	Social functioning (<i>RAND-36</i>)	Mental health (<i>RAND-36</i>)	General health (<i>RAND-36</i>)
Optimism (<i>LOT</i>)	-0.4***	0.4***	0.6***	0.4***
Neuroticism (<i>EPQ</i>)	0.4***	-0.4***	-0.5***	-0.4***

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (two tailed).

Both optimism and neuroticism correlated with THI and RAND-36 subscales. It showed that there was an equally important and significant relationship between those personality factors and Quality of Life. Neuroticism was negatively correlated to QoL (but positively correlated to THI, since it measured handicap perception) whereas optimism showed a positive relationship to QoL (and thus negative to THI). It proved two opposed correlations of those personality factors with QoL.

Then, multiple regression analyses were performed and we looked at the contribution of neuroticism and optimism to QoL (table 5.10). We first entered optimism and neuroticism together in the regression analysis and afterwards, we looked at the cumulative R^2 when those two factors are entered stepwise.

Table 5.10 Contribution and Variance of optimism and neuroticism to QoL

	Tinnitus handicap (THI)		Social functioning (RAND-36)		Mental health (RAND-36)		General health (RAND-36)	
	F(2,124)=22.9 p<0.001		F(2,124)=22.9 p<0.001		F(2,124)=54.1 p<0.001		F(2,124)=23.9 p<0.001	
	B	t	B	t	B	t	B	t
Optimism (LOT)	-0.2	-2.5*	0.2	2.9**	0.4	6.2***	0.3	4.3***
Neuroticism (EPQ)	0.3	3.8***	-0.3	-3.5***	-0.2	-3.7***	-0.2	-2.2*
PREDICTORS:	Cumulative R^2		Cumulative R^2		Cumulative R^2		Cumulative R^2	
Optimism (LOT)	(2) 0.038*		(2) 0.058**		(1) 0.407***		(1) 0.249***	
Neuroticism (EPQ)	(1) 0.228***		(1) 0.212*		(2) 0.059***		(2) 0.03*	
TOTAL	0.266*		0.270**		0.466***		0.279*	

* p<0.05, ** p<0.01, *** p<0.001 (two tailed).

(1) & (2) indicate the order of contribution of the predictors to the variance determined by SPSS (when several predictors play a role in the variance).

We see that optimism and neuroticism taken together showed a significant contribution to the variance of Quality of Life in all the tests. We found that neuroticism had negative but significant beta values in the tests (except with THI, as we previously mentioned) whereas optimism had positive and significant beta values in the RAND-36 and negative and significant in the THI. Those personality factors explained more than one fourth (between 26.6% and 27.9%) of the variance in THI, Social functioning and General health and almost a half (46.6%) in Mental health. Furthermore, we see that neuroticism predicted the majority of the variance in the THI and Social functioning scores whereas optimism had a significant but secondary role. Neuroticism remained highly significant to the contribution of the variance in mental health but optimism was the main predictor for this subscale. For General health, we see that optimism was a highly significant predictor of the variance whereas neuroticism's part in the variance was less important and less significant.

In general, we see that optimism and neuroticism had about the same importance in predicting QoL. Optimism was positively related to Quality of Life whereas neuroticism was negatively related to Quality of Life.

5.4 Hypothesis 2.b: Impact of coping strategies in Quality of Life.

We looked at the influence of coping strategies on the way people perceived their Quality of Life at T2. In table 5.11 we checked the correlations between acceptance, social and temporal comparisons, illness control beliefs and Quality of Life.

Table 5.11 Correlation of coping techniques with QoL

	Tinnitus handicap (THI)	Social functioning (RAND-36)	Mental health (RAND-36)	General health (RAND-36)
Acceptance (ICQ)	-0.68***	0.56***	0.60***	0.44***
Social comparison (STCS)	0.13	-0.15	-0.10	-0.07
Temporal comparison (STCS)	0.79***	-0.58***	-0.58***	-0.43***
Illness control beliefs (PHCS)	-0.45***	0.48***	0.39***	0.66***

* p<0.05, ** p<0.01, *** p<0.001 (two tailed).

Three of the independent variables (acceptance, temporal comparison and illness control beliefs) showed some significant correlation with THI and the RAND-36 thus with Quality of Life. Since the social comparison variable did not interact significantly with our dependent variables, we removed it from the regression analysis. The coping strategy social comparison showed no significant relationship to Quality of Life and rather low correlation. The other coping strategies show high correlation with Quality of Life (between 0.39 to -0.79) with temporal comparison showing the highest but negative relationship with QoL (except for THI). Acceptance and illness control beliefs showed significantly positive correlation with QoL and negative correlation with tinnitus handicap perception.

In table 5.12, we looked whether those strategies had significant roles in the variance of the THI and Rand-36 scores and which part of the variance of QoL was explained by which coping strategy. We first entered acceptance, temporal comparison and illness control beliefs together in the regression analysis and afterwards in stepwise order to look at the cumulative R².

Table 5.12 Contribution and variance of acceptance, comparisons and beliefs in Quality of Life

	Tinnitus handicap (THI)		Social functioning (RAND-36)		Mental health (RAND-36)		General health (RAND-36)	
	F(4,151)=71.7 p<0.001		F(4,155)=28.9 p<0.001		F(4,155)=27.2 p<0.001		F(4,155)=33.8 p<0.001	
	B	t	B	t	B	t	B	t
Acceptance (ICQ)	-0.1	-2.4*	0.1	2.0*	0.3	3.5**	0.03	0.3
Temporal Comparison (STCS)	0.6	8.6***	-0.3	-3.6***	-0.2	-3.1**	-0.1	-1.8
Illness Control Beliefs (PHCS)	-0.09	-1.7	0.2	3.4**	0.1	1.4	0.5	8.4***
PREDICTORS:	Cumulative R²		Cumulative R²		Cumulative R²		Cumulative R²	
Acceptance (ICQ)	(2) 0.022**		(3) 0.015*		(1) 0.362***			
Temporal Comparison (STCS)	(1) 0.625***		(1) 0.344***		(2) 0.043**		(2) 0.027*	
Illness Control Beliefs (PHCS)			(2) 0.067***				(1) 0.439***	
TOTAL	0.647**		0.426*		0.405**		0.466*	

* p<0.05, ** p<0.01, *** p<0.001 (two tailed).

(1), (2) & (3) indicate the order of contribution of the predictors to the variance determined by SPSS (when several predictors play a role in the variance).

Temporal comparison played a significant role in the THI scores and in the Rand-36 except for subscale General Health. Illness control beliefs showed significant results in social functioning and general health of the Rand-36. Finally, acceptance explained a significant part of the variance of Quality of Life in both the THI and Rand-36 except for subscale general health.

The variance of Quality of Life explained by coping techniques was significantly high: between 40.5 and 65.4%. Taken stepwise, the techniques did not explain an equal part of the variance. The three coping strategies all explained some variance in subscale Social Functioning. Temporal comparisons explained most of the THI and social functioning variance whereas illness control beliefs accounted for most of the General health variance. Illness control beliefs did not explain any of the variance in the THI scores neither in the mental health subscale. It showed some contribution to the variance in social functioning. We see a high contribution of acceptance

principally in mental health, then in tinnitus handicap and finally in social functioning. Acceptance did not contribute to general health.

After checking the role of personality factors and coping strategies separately, we wanted to evaluate the different role and importance they had in explaining QoL. In table 5.13 we present the stepwise analysis that showed the contribution to total variance of QoL of both personality and coping factors.

Table 5.13 Variance of both personality traits (neuroticism and optimism) and coping techniques (acceptance, temporal comparison, illness control beliefs) in QoL

PREDICTORS	Tinnitus handicap (THI)	Social functioning (RAND-36)	Mental health (RAND-36)	General health (RAND-36)
	F(3,120)=77.3 p<0.001	F(3,121)=31.8 p<0.001	F(3,121)=51.5 p<0.001	F(2,122)=59.5 p<0.001
	Cumulative R²	Cumulative R²	Cumulative R²	Cumulative R²
Optimism (LOT)			(1) 0.402***	(2) 0.060***
Neuroticism (EPQ)	(3) 0.012*	(3) 0.030*	(3) 0.031**	
Acceptance (ICQ)	(2) 0.022**		(2) 0.117***	
Temporal Comparison (STCS)	(1) 0.625***	(1) 0.344***		
Illness Control Beliefs (PHCS)		(2) 0.067***		(1) 0.434***
TOTAL	0.659*	0.441*	0.550**	0.494***

* p<0.05, ** p<0.01, *** p<0.001 (two tailed).

(1), (2) & (3) indicate the order of contribution of the predictors to the variance determined by SPSS (when several predictors play a role in the variance).

From table 5.13, we notice that the variance was mainly explained by the coping strategies with a higher significant role (41.1% to 64.7%). Temporal comparison mainly explained the THI scores and social functioning. Illness control beliefs explained the majority of the variance in general health. Acceptance came in second position with significant contribution to the variance of THI and mental health. The personality factors explained significantly all of the variables in Quality of Life especially optimism in the variance of mental health. Neuroticism explained in third position the variance in THI, social functioning and mental health scores.

6. Conclusion and Discussion

This study addresses different aspects of Quality of Life in tinnitus patients. We first studied the changes in QoL after the patients participated in an outpatient clinic protocol and investigated the potential changes in time. We therefore did two measurements, first when the patients visited the outpatient clinic and 6 months to 2 years later for our study. Then we looked at Quality of Life in the perspective of the Self-Regulation process. We concentrated on neuroticism and optimism as personality factors and on acceptance, temporal and social comparisons and illness control beliefs as coping factors.

In this discussion section, we look at the results we found and present them for each hypothesis we made. After that, we present certain aspects of our study, its purpose, its limitations and the benefits our research could have for future studies and the clinical care for tinnitus patients.

6.1 Quality of Life in the outpatient clinic protocol

6.1.1 Hypothesis 1.a) Did the perception of tinnitus and the Quality of Life of the outpatient clinic patients change?

We hypothesized that there would be significant changes in Quality of Life for tinnitus patients between the moment they visited the outpatient clinic and the moment they were contacted for this study. We thought that there could be some improvements in QoL even though we could not attribute them to the outpatient clinic intervention. However, the results we found did not confirm our expectations since there were no significant changes in Quality of Life scores between T1 and T2, except for a worsening in the subscale “social functioning”. This change in social functioning might be due to hearing loss, which is often associated with tinnitus (Mc Shane et al., 1987). People with hearing loss have higher difficulties to communicate (especially in bigger social gatherings), tend to withdraw themselves from those situations, and consequently suffer more from isolation. People with hearing loss do not hear and understand everything in normal conversation and therefore they feel lonelier. When hearing loss is associated with hyperacusis (sensitivity for sounds), people avoid even more noisy situations. Hearing loss has an important negative impact on social functioning, even when hearing loss is only mild to moderate (Wallhagen, Strawbridge, Shema, Kurata & Kaplan, 2001). Our findings were consistent with the results from other studies (presented in the literature review) that tinnitus patients experience social difficulties (Tyler & al., 1983). We can also explain this deterioration with aging for 20% of our sample (people more than 66 year old). It has been shown that after a certain age, people

do not wish to engage in as many activities. There is a age-related decline in social functioning (Bailey, Henry & Von Hippel, 2007) as well as age-related reductions in social network size (Antonucci, 2001) with a preference for closer emotional and social partners (Carstensen, & Charles, 2003).

The THI, HADS and the other subscales of the RAND-36 did not show any significant changes in Quality of Life. It might mean that in general Quality of Life remained about the same despite of the time passed, the intervention of the outpatient clinic and other (person related) factors. These results got confirmed when we looked at the changes per subcategories of patients classified by their scores on Quality of Life at T1. The majority of the patients showed stable scores. However, when we looked more closely, we noticed that for the THI, more patients improved than worsened. About a third of the patients felt less handicapped by tinnitus, which might be due to the fact that only a few people report severe handicap from tinnitus (Erlandsson, 1998) and also to habituation as some patients describe after a certain time. We also can explain the absence of changes in scores with the fact that the scores of Quality of Life were already rather good from the beginning (mild and moderate perception of tinnitus handicap and no indication for anxiety and depression). We did expect the Quality of Life to improve more than worsen but given the results to the tests at T1, we could not expect much more improvement since the patients' Quality of Life already was quite good.

We decided to further investigate the effect of time in the process of adaptation to tinnitus. We wanted to see if the changes on Quality of Life could be related to certain time-span between the two measurements. If there is some habituation, when does it occur? We therefore compared 4 groups depending on time interval between T1 and T2, but we did not find any significant differences between them. We think from our results that time did not play a role in the possible changes of scores. We could conclude that in general, peoples' scores on Quality of Life, tinnitus perception, depression and anxiety remained stable over time. We wonder if time had an effect before the outpatient clinic, which would mean the time between people got tinnitus and the moment they got an appointment in the clinic. Patients are referred to the clinic by doctors who describe in their reference letter that the patients experience their tinnitus as a burden. However, we see that at T1, patients showed on average mild to moderate tinnitus handicap and did not show any indication for anxiety and depression. The most important changes in tinnitus impact for people may take place during the waiting time after the onset of tinnitus and the visit at the outpatient clinic. We can therefore wonder if the visit at the outpatient clinic is in many cases too

late. Do the patients get help at the moment they need it the most and how is it possible to make a better screening of the needs of the patients in order to see them at the best time?

6.1.2. Hypothesis 1.b) Did the recommendations the tinnitus patients got at the outpatient clinic, and that they followed lead to improvements in their Quality of Life? (hypothesis 1.b)

We wanted to investigate the possible contribution of the recommendations given at the outpatient clinic and the effects they could have had. Since we did not perform a randomized controlled trial, we can not attribute any changes to the outpatient clinic intervention, that is why we do not make any inferences. We decided to investigate the two most important recommendations, which also got some meaning to our research: audiological (for the important number) and psycho-social (for our main interest).

Many more patients received the recommendation “assistive listening device” (69.2%) compared to 11.5 % for psycho-social counselling and 19.5% for both. This seemed related to the fact that many patients have hearing loss and those devices could help reduce tinnitus by sending more sounds, thus signals to the auditory cortex (as described in the literature review). As previously mentioned, only a minority of the patients are seriously impaired by the tinnitus (only 4 to 5 % of people with tinnitus are severely affected by it (Heller, 2003)) whereas the rest has found a way to live with it and does not need any psycho-social help. It could also explain the fact people will use more technical help.

We got a better impression of the possible effects of the different recommendations when we looked at the percentages of changes per subcategories of patients. It was notable to see as in the first hypothesis, that the majority of the patients had similar scores between T1 and T2. However the group of patients who had both devices and psycho-social counselling, showed improvements in their THI scores. They also showed the highest rate in satisfaction about the recommendations. Anxiety was reduced in the group of people who had had counselling. We saw higher percentages of improvements in Quality of Life when people had counselling than for those who only used devices. But the differences were not large enough to be significant. Adding to that, 42.4% of the patients who used assistive listening devices showed deterioration in the subscale mental health. This finding is surprising since we saw that for this group, the percentages of deterioration of depression and anxiety were quite low (13.6 and 8.5% respectively). We looked at the patients whose scores deteriorated in mental health. Their HADS and RAND-36 mental health scores were surprisingly high at T1 and they showed significant differences between T1 and T2. The consistency of the scores between the HADS and the

subscale mental health was not directly to be seen because the HADS has different range-categories of scores than the RAND-36. The groups of patients whose scores deteriorated also significantly differed at T1 from the other patients in the D group whose scores improved or remained the same. For those 25 patients, their depression, anxiety and mental health importantly deteriorated. Moreover, patients from the D group also showed lower satisfaction than the two other groups in the help they felt they received with respect to improvements in concentration, fatigue (and sleeping pattern), their ability to rest and the attention given to tinnitus. Could it be that those people received only technical help and were thus less active in their self-care and tinnitus management? Would people who had counselling show higher improvements because they got help in order to work on their coping capacities with tinnitus?

6.2 Quality of Life, personality and coping factors

6.2.1 Hypothesis 2.a) Do high optimism and low neuroticism bring higher Quality of Life?

From the Self-Regulation model we wanted to look at possible personality factors that could influence the Quality of Life outcome. We focused on both neuroticism and optimism, which were both significantly correlated to Quality of Life. We chose neuroticism and optimism because they measure opposed traits, which lead to different reactions to a chronic condition. We thought that neuroticism would have a negative influence on the Self-Regulation process whereas optimism would lead to better outcomes of this process. We saw that the correlations between both neuroticism and optimism and Quality of Life are about the same (0.4 tot 0.6) but the correlations with optimism are positive and those with neuroticism negative. Both neuroticism and optimism play a significant role in QoL with different contributions to its variance.

Our results confirmed the expectations that neuroticism influences Quality of Life in a negative way and that people with high neuroticism show stronger reactions to their tinnitus like Rasmussen et al. found in their study (2006). Neuroticism mainly explained handicap perception and low social functioning. As found in previous research (Zachariae et al, 2000), we saw a significant role of neuroticism in the way the patients of our sample see their tinnitus as being a handicap. Neuroticism also influenced patients' perception of Quality of Life. As we see in stage one of Self-Regulation, the interpretation of an illness directs the way people will adapt to their condition (Vassend & al, 1984). Neurotic people not only perceive their Quality of Life (Leventhal et al, 1997) as less satisfying but they also find the social support they get inadequate

(Costa & al, 1987). In interpersonal settings, they see others as a threat and reject them in order to protect themselves (Watson et al. 1984), what we found in our results.

As we expected, optimism contributed positively to a higher Quality of Life. It highly and significantly explained the subscales mental health and general health of Quality of Life. As found in previous studies, optimistic people have a higher Quality of Life when facing a chronic illness (Mannix, 2009). Optimism is important in the explanation of how someone will function mentally when affected by a chronic condition like tinnitus. As we have seen in the literature review and in our results, people with high optimism showed less distress. They are better mentally adjusted. We also see that optimism was related to general health. Optimistic people do focus on positive health outcomes and do not see their chronic condition as a threat as they better adapt to it (Rasmussen et al., 2006).

In this study, we focused on optimism, because we thought it would facilitate the process of Self-Regulation whereas neuroticism impedes it. In chronic conditions, optimism helps people to use more emotion focused-coping (thus less medical expectations) and neurotic people have less coping capacities. Even though we could only look at the outcome (the effect on Quality of Life), we may infer that optimism helped people with their coping and to adjust their goals and expectations (Rasmussen et al., 2006) to reach a higher Quality of Life as well as low neuroticism led to better adaptation in the process of Self-Regulation.

6.2.2 Hypothesis 2.b) Do better acceptance, stronger control beliefs and lower use of pre-tinnitus temporal comparisons relate to a higher Quality of Life?

We found a strong relationship between coping strategies and Quality of Life as we expected in the Self-Regulation process. However, we were surprised to see that none of the Quality of Life tests were related to the use of social comparison. It had been previously found that social comparison is a good way to help people create a new identity, define themselves with new and positive criteria even though they have an illness (Dijkstra et al., 2007). It might be possible to explain those findings since tinnitus is not visible and people are less inclined to notice it and therefore talk about it. Patients often say that others forget their condition since they do not see it. Some also say that they do not wish to talk about their condition to others because they do not want to focus their attention on their tinnitus. We expected that people who compare themselves to others will assess their Quality of Life as higher than those who refer only to their past selves. It might have been possible for people to change their use of comparisons in order to have a more effective way coping. However we did not find that people who use temporal comparisons are

likely to use social comparisons later on. We could not see a relationship between social and temporal comparison for tinnitus patients.

In contrast, the use of temporal comparison was highly and negatively related to Quality of Life except for the subscale General health. This might be due to the fact that the questions about general health in the Rand-36 are general and not time-related. In our results, we saw that the use of temporal comparison led to a higher perception of handicap, and lower social and mental functioning. We can explain that with the fact that people using temporal comparisons seem less calm and less happy and tend to be more depressed. They usually perceive their mental health as low. Temporal comparisons explained most of the variance in THI scores what we explain with the idea that people continue to experience tinnitus as a threat or as a handicap. They construct biased memory (Tennen et al., 2009) and therefore refuse to deal with their new life with this specific condition. We also saw in our results that temporal comparison mainly predicted the variance of the subscale social functioning, thus low social functioning. If the patients use a lot of temporal comparisons, they live in a past reality. In this situation, the patient relates more to himself than to others (Albert, 1977). We can imagine that their social relations are affected by this lack of relation to the present and this self-focus.

We expected that acceptance would lead to a higher Quality of Life. We found that acceptance significantly and strongly explained Quality of Life except in the general health domain. We explain those results by the fact that acceptance is a good way to deal with emotional reactions. Acceptance is an emotional intelligence (Schutte & al, 2009) which emphasizes the integration of physical limitations in one's life thanks to an emotion-focused coping. Thus we found a negative relationship between tinnitus handicap perception and acceptance. People using acceptance do not see their tinnitus as a handicap since it became a part of their lives. Acceptance is not related to general health or to handicap since this coping strategy is not related to physical functioning or body related experiences. We expect acceptance to help people accept the permanence of this noise in stage two of Self-Regulation. Acceptance was strongly related to mental health (acceptance being its main predictor), the subscale that results more from well being integrated in the way of thinking. Acceptance allows people to be in contact with their tinnitus as a part of themselves they do not think of as threatening (anymore) (Hayes, et al., 1999).

Illness control beliefs mainly explained the variance in General health. This coping strategy refers to the way people perceive and manage their health in general. It showed no role in mental health and in tinnitus handicap perception. Those results were surprising since those

two tests refer to a more complete overview of the impact of tinnitus in life. We could explain those findings by the idea that tinnitus is not controllable and the best idea of control people can have is to accept it. Illness control beliefs and emotion-focused coping might at the end lead to acceptance. However illness control beliefs, as an active mode of emotion-focused significantly influenced social functioning. People who think they have good control over their health or their life in general might undertake more activities and therefore have a higher social Quality of Life. In previous research, people who had higher expectancies and ideas of control had a more effective style of coping. They experienced their tinnitus as less loud and less unpleasant and were less anxious than people who had external illness control beliefs (Budd et al, 1995; Attias et al, 1995; Budd et Pugh, 1996).

6.2.3 Personality and coping factors

We also investigated the role of both coping and personality factors as the model of Self-Regulation shows their combined influence on Quality of Life. From all those factors put together, we noticed the important contribution of temporal comparison in the variance of Quality of Life for tinnitus patients. It indicates that the less the patients think of the past, the better it seems for their Quality of Life. It seems that the focus on the present would be an important factor of Quality of Life. However, temporal comparison did not contribute to explaining mental health whereas optimism remained the most important predictor in this subscale. Mental health is mainly explained by personality factors whereas tinnitus handicap perception and social functioning are mainly explained by coping factors.

In general we see that the different aspects of Quality of Life we measured have different determinants. Based on the model of Self-Regulation, we saw that all the factors we included to some extent played a role in Quality of Life even though for tinnitus patients, coping strategies more importantly and more significantly influenced Quality of Life. As we saw in the literature, Quality of Life is a concept that covers many domains of life and those domains are determined by different factors. It might be interesting to evaluate in which domain people have the most difficulties in order to adapt the focus and give more adapted recommendations.

6.3 About the study

The fact that we performed an uncontrolled prospective intervention study does not allow us to measure the effects of the protocol on Quality of Life. We selected consecutive patients who consulted the outpatient clinic. It showed as we expected that there were more men than women. As we previously mentioned this is common in tinnitus' patients. In that aspect, our

sample was representative of the bigger population of tinnitus patients, where men are in majority. Another aspect of tinnitus patients we found in our sample was the age. Patients from both groups were on average older than fifty, when people start to have more hearing losses (at least in the high frequencies), which can cause tinnitus.

We encountered a problem about the exactness of the data with respect to the recommendations patients got. We noticed that the patients did not accurately remember what kind of recommendations they got (comparison of what they said at T2 compared to what recommendation was given at T1). Many did not fill up the matching questionnaires or some filled in everything even though they did not follow the corresponding recommendations. Furthermore, the small groups of patients who got certain recommendations, makes it difficult to generalize the results to the larger population of tinnitus patients. Furthermore, we had to put three kinds of counselling in the same group that we treated as if there were the same kind. The different effects of the different types of counselling were not evaluated, what might have been important to look at if the number of patients had been sufficient. We had at the end three different groups that differed from each other from the start, since the recommendations were based on the unique needs of each patient. It might have been interesting to investigate what kind of recommendation was most efficient and suitable for what kind of patient. We can also wonder if the significant differences we found in the psycho-social counselling group and the group of patients who had both device and counselling were reliable since the groups were small. A small N might lead to less statistical power in the test and might be biased. Our results are not as reliable as they would be with bigger samples. The groups were maybe not representative and of the whole population of tinnitus patients who followed those kinds of recommendations.

From our model, we thought that time could be a factor that allows patients to reach some level of adaptation. We did not find this in our findings but as we mentioned we could not control all the effects of time and we suspect an important role of time before the patients visited the outpatient clinic. This could be an interesting question for a future research with the idea that the patients would fill in Quality of Life questionnaires as soon as they see their general or ENT practitioner in relation to their tinnitus. We wonder if it would not be more interesting to measure acceptance instead of THI scores. The handicap people experience is subjective and is sometimes due to several factors (physical and/or mental) that are not directly related to tinnitus. If there is some screening earlier, it might help us to answer the question about the selection and the

waiting time before the admission to the outpatient clinic. Collaboration between the tinnitus outpatient clinic and the practitioners who handle the first symptoms of tinnitus might lead to a higher improvement of tinnitus patients' care. Patients might also feel that they are better understood by those professionals if their complaint is better examined.

As previously mentioned (paragraph 6.1.1), our sample scored quite high on the Quality of Life tests. Compared to previous studies (Koeneman, 2005), our sample of tinnitus patients showed relatively low scores in THI and HADS and showed high scores in the RAND-36. This sample might not be representative of the population of tinnitus patients who experience tinnitus as a severe handicap with important consequences on daily life and reduced Quality of Life.

In this study we showed from our data collection and from clinical observations with patients that tinnitus is a chronic condition that needs to be further investigated. The idea of establishing a protocol was mainly to help tinnitus patients. From the small sample in the hypothesis 1.b, we see that the patients who followed the recommendations showed some satisfaction whereas when we look at the whole sample, there were no significant improvements in Quality of Life. It would be interesting to be able to address those findings in further controlled studies.

It might have been interesting to look further at some other characteristics of the patients. We could have seen which associations there were between those characteristics and personality and coping factors. In further studies, we could include age, sex as covariate. We could also evaluate the effect of time and habituation when linked to personality trait and coping strategies. Therefore, we would use some information people give about how long they have tinnitus, the loudness and the burden they experience from it. It would help to better understand the findings that tinnitus loudness is not related to lower Quality of Life (Lindberg et al., 1987). In further studies, we could evaluate all the effects the different aspects of tinnitus have on acceptance.

To conclude, tinnitus patients do not necessarily see their Quality of Life as being better whereas we found here important use of coping strategies and influence of personality factors. An interesting finding is that coping strategies have a higher contribution to Quality of Life than personality characteristics. As previously mentioned, personality traits are stable and it is difficult to change them in order for the patients to reach a higher Quality of Life. However, people can learn how to cope in better ways. In counselling or by themselves, people establish

strategies that will help them and in the process of adaption as shown in the Self-Regulation process. People can regulate and adapt their ways of coping in order to better adapt to their chronic condition.

The lack of improvements in Quality of Life could be due to the fact that patients go through the process of Self-Regulation and in some way learn to adapt to tinnitus but still perceive the burden of tinnitus as high as in the beginning. The impact and meaning of tinnitus could change whereas the way people describe it would remain the same. Even though we found that temporal comparison was the coping strategy most used, this strategy is actually a negative way of coping. Acceptance shows a good way to relate to the present and embrace life in a positive way. That is why it seems interesting to implement the measurement of acceptance to see how the perception of tinnitus changes, how people learn to deal with it and maybe accept it. The nature of the tinnitus that people hear stays the same and as we saw, it might be more interesting to focus on the meaning people give to their tinnitus: the word “tinnitus” remains identical but the relationship a person develops with his tinnitus changes.

7. Bibliography

- Albert, S. (1977). Temporal Comparison Theory. *Psychological Review*, 84, 485-503.
- Antonucci, T.C. (2001). Social relations. In J.E. Birren & K.W. Schaie (Eds.), *Handbook of the psychology of aging 5th ed.*, (pp. 427–453). California: Academic Press.
- Attias, J., Shemesh, Z., Bleich, A., Solomon, Z., Bar-Or, G., Alster, J. & Sohmer H. (1995). Psychological Profile of Help-seeking and Non-help-seeking Tinnitus Patients. *Scandinavian Audiology*, 24, 13-18.
- Axelsson, A., & Ringdahl, A. (1989). Tinnitus - a study of its prevalence characteristics. *British Journal of audiology*, 23(1), 53-62.
- Bailey, P.E., Henry, J.D. & Von Hippel, W. (2008). Empathy and social functioning in late adulthood. *Aging & Mental Health* 12(4), 499-503.
- Baldo, P., Doree, C., Lazzarini, R., Molin, P. & McFerran, D. (2006). Antidepressants for patients with tinnitus. *Cochrane Database of Systematic Reviews*, 4, 1-27.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Barrick, M.R., Mount, M.K. & Judge, T.A. (2001). Personality and performance at the beginning of the new millennium: What do we know and where do we go next? *International Journal of Selection and Assessment*, 9, 9-30.
- Bartels, H. (2008). Tinnitus, new insights into pathophysiology, diagnosis and treatment (proefschrift). Groningen: Medische Wetenschappen.
- Bauch, C.D., Lynn S.G., Williams, D.E., Mellon, M.W. & Weaver, A.L. (2003). Tinnitus impact: three different measurement tools. *Journal of the American Academy of Audiology*, 14, 584-592.
- Benyamini, Y. (2009). Stress and Coping with Women's Health Issues. A Review from a Self-Regulation Perspective. *European Psychologist* 14(1), 63-71.
- Broemer, P., Grabowski, A., Gebauer, J.E., Ermeli O. & Diehl M. (2008). How temporal distance from past selves influences self-perception. *European Journal of Social Psychology*, 38, 697-714.
- Budd, R.J. & Pugh, R. (1995). The relationship between locus of control, tinnitus severity and emotional distress in a group of tinnitus sufferers, *Journal of Psychosomatic Research*, 39, 1015-1018.
- Budd, R.J. & Pugh, R., (1996). Tinnitus coping style and its relationship to tinnitus severity and emotional distress. *Journal of Psychosomatic Research*, 41, 327-335.
- Carstensen, L.L., Fung, H.H., & Charles, S.T. (2003). Socioemotional selectivity theory and the regulation of emotion in the second half of life. *Motivation and Emotion*, 27, 103-123.

Carver, C.S. & Scheier, M. (2001). Optimism, pessimism, and self-regulation. In E. C. Chang (Ed.), *Optimism & pessimism: Implications for theory, research, and practice* (pp. 31-51). Washington, DC: American Psychological Association.

Carver, C.S. & Scheier, M. (2003). Optimism. In S.J. Lopez, C. R. Snyder, (Ed.), *Positive psychological assessment: A handbook of models and measures* (pp. 75-89). Washington, DC: American Psychological Association.

Coles R.R.A. (1984). Epidemiology of tinnitus. Demographic and clinical features. *The Journal of Laryngology and Otology. Supplement*, 9, 195-202.

Corbin, J. & Strauss A.S. (1987). Accompaniments of chronic Illness: Changes in body, self, biography, and biographical time. In J.A. Roth & P. Conrad (Eds.), *The Sociology of Health Care*. (pp. 249-281). Greenwich, CT: JAI Press.

Costa, P.T., Robert, R., McCrae, R.R. & Holland, J L. (1984). Personality and Vocational Interests in an Adult Sample, *Journal of Applied Psychology*, 69, p 390-400.

Dahlbeck, D.T. & Lightsey, O.R. Jr. (2008). Generalized Self-Efficacy, Coping, and Self-Esteem as Predictors of Psychological Adjustment Among Children With Disabilities or Chronic Illnesses. *Children's Health Care*, 37, 293-315.

Dembo, T., Leviton, G. & Wright, B.A. (1956). Adjustment to misfortune: A problem of social-psychological rehabilitation. *Artificial Limbs*, 3(2), 4-62.

Dijkstra, A., & Borland, R. (2003). Residual outcome expectations and relapse in ex-smokers. *Health Psychology*, 22, 340-346.

Dijkstra, A., Borland, R. & Buunk, A.P. (2007). The motivation to stay abstinent in ex-smokers: Comparing the present with the past. *Addictive Behaviors*, 32, 2372- 2376.

Dijkstra, A., Buunk, A.P., Tóth, G. & Jager, N. (2008). Psychological Adjustment to Chronic Illness: The Role of Prototype Evaluation in Acceptance of Illness. *Journal of Applied Biobehavioral Research*, 12(3-4), 119-140.

Ebata, A.T. & Moos, R.H. (1991). Coping and Adjustment in Distressed and Healthy Adolescents. *Journal of Applied Developmental Psychology*, 12, 33-54.

Erlandsson, S.I. & Hallberg, L.R. (2000). Prediction of quality of life in patients with tinnitus. *British journal of audiology*, 34(1), 11-20.

Evers, A.W.M., Kraaimaat, F.W., Lankveld, W. van, Jongen, P.J.H., Jacobs, J.W.G. & Bijlsma, J.W.J. (2001). Beyond unfavorable thinking: The illness cognition questionnaire for chronic diseases. *Journal of consulting and clinical psychology*, 69(6), 1026-1036.

Eysenck, H.J. & Eysenck. S.B.G. (1991). *Manual of the Eysenck Personality Scales (EPS Adult)*. London: Hodder & Stoughton.

- Fagerlind, H., Ring, L., Brülde, B., Feltelius, N. & Lindblad, A.K. (2010). Patients' understanding of the concepts of health and quality of life. *Patient Education and Counseling*, 78, 104-110.
- Festinger, L. (1954). A theory of social comparison process. *Human Relations*, 7, 117-140.
- Fiske, D.W. (1949). Consistency of the factorial structures of personality ratings from different sources. *Journal of Abnormal Social Psychology*, 44, 329-344.
- Folkman, S., & Lazarus R.S (1980). An analysis of coping in a middled- aged community sample. *Journal of Health and Social Behaviour*, 21, 219-239.
- Folkman, S. & Lazarus, R.S. (1988). The relationship between coping and emotion: Implications for theory and research. *Social Science Medicine*, 26(3), 309-317.
- Folkman, S., Schaefer, C. & Lazarus, R.S. (1979). Cognitive processes as mediators of stress and coping. In V. Hamilton & D.M. Warburton (Eds.), *Human stress and cognition: An information processing approach* (pp. 265-298). Chichester, UK: Wiley.
- Fournier, M., de Ridder, D. & Bensing, J. (1999). Optimism and adaptation to multiple sclerosis: What does optimism mean? *Journal of Behavioral Medicine*, 22, 303-326.
- Fournier, M., de Ridder, D., Bensing, J., (2002). Optimism and adaptation to chronic disease: The role of optimism in relation to self-care options of type 1 diabetes mellitus, rheumatoid arthritis and multiple sclerosis. *British Journal of Health Psychology*, 7, 409-432.
- Franks H.M. & Roesch S. C., (2006). Appraisals and coping in people living with cancer: a meta-analysis. *Psycho-Oncology* 15, 1027-1037.
- Fruyt de, F. & Denollet, J. (2002). Type D personality: A five-factor model perspective. *Psychology and Health*, 17(5), 671-683.
- Gibbons, F.X. & Buunk, B.P. (1999). Individual differences in social comparison: Development of a scale of social comparison orientation. *Journal of Personality and Social Psychology*, 76(1), 129-142.
- Glenn, A., Howard T. & Andrea, A. (2001). Optimism, pessimism, and daily life with chronic illness. In E. C. Chang (Eds.), *Optimism & pessimism: Implications for theory, research, and practice* (pp. 147-168). Washington, DC: American Psychological Association.
- Gordon, P.A., Feldman, D., Crose, R., Schoen, E., Griffing, G. & Shankar, J. (2002). The role of religious beliefs in coping with chronic illness. *Counseling and Values*, 46, 162-174.
- Griva, K., Myers, L.B. & Newman, S. (2000). Illness Perceptions and Self-Efficacy Beliefs in Adolescents and young Adults with Insulin dependent Diabetes Mellitus. *Psychology and Health*, 15, 733-750.
- Griva, K., Jayasena, D., Davenport, A, Harrison, M., & Newman, S.P. (2009). Illness and treatment cognitions and health related quality of life in end stage renal disease. *British Journal of Health Psychology*, 14, 17-34

Hart, K.E. & Hope C.W., (2004). Cynical hostility and the psychosocial vulnerability model of disease risk: confounding effects of neuroticism (negative affectivity) bias. *Personality and Individual Differences*, 36(7), 1571-1582.

Hayes, S.C. & Wilson, K.G., (1994). Acceptance and Commitment Therapy: Altering the Verbal Support for Experiential Avoidance. *The Behavior Analyst*, 17, 289-303.

Heller, A.J. (2000). Hearing. *Academic press*, first, 461-473.

Heller, A.J. (2003). Classification and epidemiology of tinnitus. *Otolaryngologic Clinics of North America*, 36, 239-248.

Henderson, C.J. & Hagger, M. S. (2009). Illness Schema Activation and Attentional Bias to Coping Procedures. *Health Psychology* 28(1), 101–107

Hesser, H., Westin, V., Hayes S.C. & Andersson, G. (2009). Clients' in-session acceptance and cognitive defusion behaviors in acceptance-based treatment of tinnitus distress. *Behaviour Research and Therapy*, 47, 523–528.

House, P.R. (1981). Personality of tinnitus patients. In D. Evered D. & G. Lawrenson (Eds). *Tinnitus*, (Ciba Symposium 85) (pp. 193-203). London, Pitman.

Hulshof, J.H. (1985). *Klinische bevindingen bij patiënten met oorsuizen*. ' s-Gravenhage: Pasmans.

Karademas, E.C., Tsagaraki A. & Lambrou N. (2009). Illness Acceptance, Hospitalization Stress and Subjective Health in a Sample of Chronic Patients Admitted to Hospital. *Journal of Health Psychology* 14, 1243-1451.

Kassin, S., (2003). *Psychology*. USA: Prentice-Hall, Inc.

Koeneman, M.A. (2005). Tinnitus zonder OOOzaak. Een empirische onderzoek naar de variabelen die samenhangen met de revaren last van tinnitus (Master thesis), *Wetenschapswinkel Geneeskunde en Volksgezondheid RuG*.

McCrae, R.R. & Costa, P.T. (1987). Neuroticism, Somatic Complaints, and Disease: Is the Bark Worse than the Bite? *Journal of Personality*, 55, 299-316.

Moffat, G., Adjout K., Gallego S., Thai-Van H., Collet L. & Noreña, A.J. (2009). Effects of hearing aid fitting on the perceptual characteristics of tinnitus. *Hearing Research*, 254, 82-91.

Lau-Walker, M. (2007). Importance of illness beliefs and self-efficacy for output in response to stress. *Psychology & Health*, 24, 489 -500.

Lau-Walker, M.O., Cowie, M.R. & Roughton, M. (2008). Coronary heart disease patients' perception of their symptoms and sense of control are associated with their quality of life three years following hospital discharge. *Journal of Clinical Nursing*, 18, 63-71.

Lazarus, R.S. & Folkman, S. (1984). *Stress, Appraisal, and Coping*. Springer Publishing Co.: New York.

Leventhal, H., Leventhal, E.A. & Contrada, R.J. (1998). Self-regulation, health, and behavior: A perceptual-cognitive approach. *Psychology & Health*, 13(4), 717-733.

Leventhal, H. & Nerenz, D.R. (1982). A model for stress research and some implications for the control of stress disorders. In D. Meichenbaum & M. Jaremko (Eds), *Stress Prevention and Management: A Cognitive Behavioral Approach* (pp. 5-38). Plenum Press, New York.

Leventhal, H., Nerenz, D. & Steele, D.J. (1984). Illness Representations and Coping with Health Threats. In A. Baum, S.E. Taylor & J.E. Singer (Eds.). *Handbook of Psychology and Health*, Vol. 4 (pp 219-252). N.J.: ER/Baum.

Leventhal, H. & Colman, S. (1997). Quality of life: A process view. *Psychology & Health*, 12, (753 -767).

Lindberg, P., Scott, B., Melin, L. & Lyttkens, L. (1987). Long-term effects of psychological treatment of tinnitus. *Scandinavian Audiology*, 16, 167-172.

Lockwood, A.H., Salvi R.J. & Burkard, R.F. (2002). Tinnitus. *The New England Journal of Medicine*, 347(12), 904-910.

Mannix, M.M. (2009). Optimism, quality of life, and coping style in adolescents with cancer (Ph.D. dissertation), *Dissertation abstracts international. B, The sciences and engineering*, 70(9), 1-103.

Marks, G., Richardson J.L., Graham J.W. & Levine A. (1986). Role of Health Locus of Control Beliefs and Expectations of Treatment Efficacy in Adjustment to Cancer. *Journal of Personality and Social Psychology*, 51, 443-450.

Martinez-Devesa, P., Waddell, A., Perera, R. & Theodoulou, M. (2007). Cognitive behavioural therapy for tinnitus. *Cochrane Database of Systematic Reviews*, 1. Art. No.: CD005233. DOI: 10.1002/14651858.CD005233.pub2.

McCracken L.M. & Eccleston C. (2003). Coping or acceptance: what to do about chronic pain? *Pain* 105, 197-204.

McFarland, C. & Alvaro, C. (2000). The Impact of Motivation on Temporal Comparisons: Coping With Traumatic Events by Perceiving Personal Growth. *Journal of Personality and Social Psychology*, 79, 327-343.

Mc Shane, D.P., Hyde, M.L. & Alberti, P.E.W. (1987). Tinnitus prevalence in occupational hearing loss claimants. In H. Feldmann (Ed.). *Proceedings of the Third International Tinnitus Seminar* (pp. 162–167). Karlsruhe: Harsch Verlag.

Moller, A.R. (2000). *Hearing: Its Physiology and Pathophysiology*. San Diego: Academic Press.

Newman, C. W., Jacobson, G. P. & Spitzer, J. B. (1996). Development of the Tinnitus Handicap Inventory. *Otolaryngology- Head & Neck Surgery*, 122, 143-148.

Peterson, C. & Bossio, L.M. (2001). Optimism and physical well-being. In E. C. Chang (Ed.), *Optimism & pessimism: Implications for theory, research, and practice* (pp. 127-145). Washington, DC: American Psychological Association.

Rasmussen, H.N., Wrosch, C., Scheier, M.F. & Carver, C.S. (2006). Self-Regulation Processes and Health: The Importance of Optimism and Goal Adjustment. *Journal of Personality*, 74, 1721-1747.

Rickabaugh C.A & Tomlinson-Keasey C. (1997). Social and Temporal Comparisons in Adjustment to Aging. *Basic and Applied Social Psychology*, 79, 307-328.

Roberts, B.W., Kuncel, N.R., Shiner, R., Caspi, A., & Goldberg, L.R. (2007). The power of personality: The comparative validity of personality traits, socioeconomic status, and cognitive ability for predicting important life outcomes. *Perspectives on Psychological Science*, 2, 313-345.

Roddenberry, A. & Renk, K., (2010). Locus of Control and Self-Efficacy: Potential Mediators of Stress, Illness, and Utilization of Health Services in College Students. *Child Psychiatry and Human Development*, 41, 353-370.

Rotter, J.B. (1954). *Social learning and clinical psychology*. Englewood Cliffs, NJ: Prentice-Hall.

Sanderman, R., Eysenck, S.B.G. & Arrindell, W.A. (1991). Cross-cultural comparisons of personality: The Netherlands and England. *Psychological Reports*, 69, 1091-1096.

Scheier, M. F. & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology*, 4, 219-247.

Schipper, H., Clinch, J.J. & Olweny, C.L.M. (1996) Quality of life studies: Definitions and conceptual issues. In B. Spilker (Ed.) *Quality of life and pharmacoeconomics in clinical trials* (ed. 2), (pp. 11-24). Philadelphia: Lippincott-Raven.

Schutte, N.S., Noble, W., Malouff, J.M. & Bhullar, N. (2009). Evaluation of a model of distress related to Tinnitus. *International Journal of Audiology* 48, 428-432.

Schwaber, M.K., (2003). Medical evaluation of tinnitus. *Otolaryngologic Clinics of North America*, 36, 287-292.

Smith, T.W., & Pope, M.K. (1990). Cynical hostility as a health risk: current status and future directions. *Journal of Social Behavior and Personality*, 5, 77-88.

Smith, T.W. (1992). Hostility and health: current status of a psychosomatic hypothesis. *Health Psychology*, 11, pp139-150.

Smith, T.W. & Christensen, A.J. (1992). Hostility, health and social contexts. In H.S. Friedman (Ed.). *Hostility, coping and health* (pp. 33-48). Washington, DC: American Psychological Association.

- Smith, T.W. & Gallo, L.C. (1994). Psychosocial influences on coronary heart disease. *Irish Journal of Psychology*, 15, 8-26.
- Smith, M.S., Wallston, K.A. & Smith C.A. (1995). The development and validation of the Perceived Health Competence Scale. *Health Education Research*, 10, 51-64.
- SparkNotes Editors. "SparkNote on Personality." SparkNotes.com. SparkNotes LLC. 2005. Web. 2 Jun. 2010.
- Spini, D., Clémence, A. & Ghisletta, P. (2007). How are Temporal and Social Comparisons Related to Appraisals of Self-Rated Health During Very Old Age? *Swiss Journal of Psychology*, 66, 79-89.
- Tennen, H. & Affleck, G. (2009). Assessing positive life change: In search of meticulous methods. In C.L. Park, S.C. Lechner, M.H. Antoni & A.L. Stanton (Ed.). *Medical illness and positive life change: Can crisis lead to personal transformation?* (pp. 31-49). Washington, DC: American Psychological Association.
- Thuné-Boyle, I.C.V., Myers, L.B. & Newman, S.P. (2006). The Role of Illness Beliefs, Treatment Beliefs, and Perceived Severity of Symptoms in Explaining Distress in Cancer Patients During Chemotherapy Treatment. *Journal of Behavioural Medicine*, 32, 19-29.
- Tyler, R.S. & Baker, L.J. (1983). Difficulties experienced by tinnitus sufferers. *Journal of Speech and Hearing Disorders*, 48, 150-154.
- Vassend, O. & Skrondal, A. (1999). The Role of Negative Affectivity in Self-assessment of Health. A Structural Equation Approach. *Journal of Health Psychology*, 4, 465-482.
- Wallhagen, M.I., Strawbridge, W.J., Shema, S.J., Kurata, J. & Kaplan, G.A. (2001). Comparative impact of hearing and vision impairment on subsequent functioning. *Journal of the American Geriatrics Society*, 49(8), 1086-1092.
- Ware, J.E. & Sherbourne, C.D. (1992). The RAND-36 Short-form Health Status Survey: 1. Conceptual framework and item selection. *Medical Care* 30(6), 473-481.
- Watson, D. & Clark, L.A. (1984). Negative Affectivity: The Disposition to Experience Aversive Emotional States. *Psychological Bulletin*, 3, 465-490.
- Watson, D. & Pennebaker, J.W. (1989). Health Complaints, Stress, and Distress: Exploring the Central Role of Negative Affectivity. *Psychological Review*, 96, 234-254.
- Westin, V., Steven, C., Hayes, S. C. & Andersson, G. (2008). Is it the sound or your relationship to it? The role of acceptance in predicting tinnitus impact. *Behaviour Research and Therapy*, 46, 1259-1265.
- Wilson, A.E. & Ross, M. (2000). The Frequency of Temporal-Self and Social Comparisons in People's Personal Appraisals. *Journal of Personality and Social Psychology*, 78, 928-942.
- Wise, T.N. & Rosenthal, J.B. (1982). Depression, Illness beliefs and Severity of illness. *Journal of Psychosomatic* 26, 247-253.

Zachariae, R., Mirz, F., Johansen, L.V. & Andersen, S. E. (2000). Reliability and validity of a Danish adaptation of the Tinnitus Handicap Inventory. *Scandinavian Audiology*, 29, 37-43.

Zauszniewski, J.A, McDonald, P.E, Krafcik, K., Chung, C., Dobratz M.C. & Downe-Wamboldt B. (2002). Acceptance, Cognitions, and Resourcefulness in Women with Diabetes. *Western Journal of Nursing Research*, 24, 728-750.

Zigmond, A.S. & Snaith, R.P. (1983). The hospital anxiety and depression scale. *Acta Psychiatrica Scandicinia*, 67(6), 361-70.

8. Appendix

8.1 T2 Questionnaire

TINNITUS

Tinnitusspreekuur - Vragenlijst II-T2



umcg

KNO/UACG

II-T2
Code: ____
UMCG-nr: ____
Datum: __ - __ - ____

Instructie

U doet mee aan dit onderzoek vanwege uw tinnitus. Wij willen onderzoeken of de tinnitus van invloed is op uw dagelijkse activiteiten en hoe u deze gevolgen ervaart. Door middel van deze vragenlijst hopen wij een zo compleet mogelijk beeld te krijgen van uw situatie sinds u het tinnitusspreekuur van de afdeling KNO in het UMCG heeft bezocht.

Bij het invullen van de vragen is een aantal punten van belang. Wilt u daarom de onderstaande aanwijzingen doorlezen?

- Het invullen van deze vragenlijst duurt ongeveer 30 minuten.
- Lees iedere vraag aandachtig door en neem de tijd voor het invullen van de antwoorden. Omcirkel steeds het antwoord dat het meest op u van toepassing is. Vul de vragenlijst **alleen** in.
- De vragenlijst is vrij lang en u kunt moe worden voordat u alles ingevuld heeft. Als dat zo is, leg de vragenlijst dan gerust even weg en maak het later af.
- Wilt u slechts één antwoord per vraag geven, tenzij anders wordt vermeld?
- Voor het welslagen van het onderzoek is het van belang dat u de vragenlijst volledig invult. U wordt verzocht alleen vragen over te slaan als dat aangegeven wordt. Het kan zijn dat enkele vragen eerder in de bundel gesteld zijn, soms in een wat andere bewoording.
- Er zijn geen goede of slechte antwoorden mogelijk. Het gaat erom dat u de vragen zo eerlijk mogelijk beantwoordt en uw eigen mening geeft. Het is het beste niet te lang na te denken over de vragen.
- De antwoorden worden als zeer vertrouwelijk beschouwd en zullen als zodanig behandeld worden.
- Als u klaar bent met het invullen, wilt u dan de vragenlijst nog eens doornemen om te zien of u geen vragen heeft overgeslagen?

Op de laatste pagina is er een mogelijkheid om opmerkingen over de vragen te maken.

Hartelijk dank voor uw medewerking!

Vragenlijst 1

Het doel van deze vragen is om de problemen te achterhalen die door de tinnitus mogelijk veroorzaakt worden.

	ja	soms	nee
1. Zijn er concentratiestoornissen als gevolg van tinnitus?	1	2	3
2. Maakt tinnitus het moeilijk om andere mensen te verstaan?	1	2	3
3. Maakt de tinnitus u boos?	1	2	3
4. Maakt de tinnitus u verward?	1	2	3
5. Maakt de tinnitus u wanhopig?	1	2	3
6. Klaagt u veel over tinnitus?	1	2	3
7. Valt u moeilijk in slaap als gevolg van de tinnitus?	1	2	3
8. Voelt u zich gevangen door de tinnitus?	1	2	3
9. Vermijdt u sociale activiteiten als gevolg van de tinnitus?	1	2	3
10. Bent u gefrustreerd door de tinnitus?	1	2	3
11. Denkt u door de tinnitus een ernstige ziekte te hebben?	1	2	3
12. Heeft u minder plezier in het leven als gevolg van de tinnitus?	1	2	3
13. Benadeelt de tinnitus u in uw werk of huishouding?	1	2	3
14. Bent u vaker geïrriteerd als gevolg van de tinnitus?	1	2	3
15. Is lezen moeilijker geworden als gevolg van de tinnitus?	1	2	3
16. Maakt de tinnitus u ongerust?	1	2	3
17. Staat de relatie van u met uw familie en vrienden onder druk door de tinnitus?	1	2	3
18. Is het moeilijk om uw aandacht te verplaatsen van de tinnitus naar andere zaken?	1	2	3
19. Vindt u dat u geen controle heeft over de tinnitus?	1	2	3
20. Bent u vermoeid door de tinnitus?	1	2	3
21. Bent u depressief door de tinnitus?	1	2	3

22.	Bent u angstig als gevolg van de tinnitus?	1 ja	2 soms	3 nee
23.	Vindt u dat u de tinnitus niet langer aankunt?	1	2	3
24.	Wordt de tinnitus erger door stress?	1	2	3
25.	Maakt de tinnitus u onzeker?	1	2	3

Vragenlijst 2

In deze vragenlijst wordt naar uw gezondheid gevraagd. Wilt u elke vraag beantwoorden door het juiste cijfer te omcirkelen. Wanneer u twijfelt over het antwoord op een vraag, probeer dan het antwoord te geven dat het meest van toepassing is.

1.	Wat vindt u, over het algemeen genomen, van uw gezondheid?	1 uitstekend 2 zeer goed 3 goed 4 matig 5 slecht
2.	<i>In vergelijking met een jaar geleden</i> , hoe zou u <i>nu</i> uw gezondheid in het algemeen beoordelen?	1 veel beter dan een jaar geleden 2 iets beter dan een jaar geleden 3 ongeveer hetzelfde als een jaar geleden 4 iets slechter dan een jaar geleden 5 veel slechter dan een jaar geleden
3.	De volgende vragen gaan over dagelijkse bezigheden. Wordt u door uw gezondheid op dit moment beperkt bij deze bezigheden? Zo ja, in welke mate?	ja, ernstig beperkt ja, een beetje beperkt nee, helemaal niet beperkt
a	<i>forse inspanning</i> zoals hardlopen, zware voorwerpen tillen, inspannend sporten	1 2 3
b	<i>matige inspanning</i> zoals het verplaatsen van een tafel, stofzuigen, fietsen	1 2 3
c	tillen of boodschappen dragen	1 2 3
d	<i>een paar</i> trappen oplopen	1 2 3
e	<i>één</i> trap oplopen	1 2 3
f	buigen, knielen of bukken	1 2 3

Determinants of tinnitus' impact in Quality of Life

g	meer dan een kilometer lopen	1	2	3							
h	een halve kilometer lopen	1	2	3							
		ja, ernstig beperkt	ja, een beetje beperkt	nee, helemaal niet beperkt							
i	honderd meter lopen	1	2	3							
j	uzelf wassen of aankleden	1	2	3							
4.	Hoe vaak had u, ten gevolge van uw lichamelijke gezondheid , de afgelopen 4 weken één van de volgende problemen bij uw werk of andere dagelijkse bezigheden?	voort- durend	vaak	soms	zelden	nooit					
a	u heeft <i>minder tijd</i> kunnen besteden aan werk of andere bezigheden	1	2	3	4	5					
b	u heeft <i>minder bereikt</i> dan u zou willen	1	2	3	4	5					
c	u was beperkt in het <i>soort</i> werk of het soort bezigheden	1	2	3	4	5					
d	u had moeite met het werk of andere bezigheden (het kostte u bijvoorbeeld extra inspanning)	1	2	3	4	5					
5.	Hoe vaak had u, ten gevolge van een emotioneel probleem (bijvoorbeeld doordat u zich depressief of angstig voelde), de afgelopen 4 weken één van de volgende problemen bij uw werk of andere dagelijkse bezigheden?	voort- durend	vaak	soms	zelden	nooit					
a	u heeft <i>minder tijd</i> kunnen besteden aan werk of andere bezigheden	1	2	3	4	5					
b	u heeft <i>minder bereikt</i> dan u zou willen	1	2	3	4	5					
c	u heeft het werk of andere bezigheden niet zo zorgvuldig gedaan als u gewend bent	1	2	3	4	5					
6.	In hoeverre heeft uw lichamelijke gezondheid of hebben uw emotionele problemen u de afgelopen 4 weken belemmerd in uw normale sociale bezigheden met gezin, vrienden, burens of anderen?	1	helemaal niet	2	enigszins	3	nogal	4	veel	5	heel erg veel

7. Hoeveel **pijn** had u *de afgelopen 4 weken*?
 1 geen
 2 heel licht
 3 licht
 4 nogal
 5 ernstig
 6 heel ernstig
-
8. In welke mate heeft **pijn** u *de afgelopen vier weken* belemmerd bij uw normale werkzaamheden (zowel werk buitenshuis als huishoudelijk werk)?
 1 helemaal niet
 2 een klein beetje
 3 nogal
 4 veel
 5 heel erg veel
-
9. Deze vragen gaan over hoe u zich *de afgelopen 4 weken* heeft **gevoeld**. Wilt u bij elke vraag het antwoord omcirkelen dat het beste aansluit bij hoe u zich heeft gevoeld.
- Hoe vaak gedurende *de afgelopen 4 weken*:
- | | voortdurend | vaak | soms | zelden | nooit |
|---|-------------|------|------|--------|-------|
| a voelde u zich levenslustig? | 1 | 2 | 3 | 4 | 5 |
| b voelde u zich erg zenuwachtig? | 1 | 2 | 3 | 4 | 5 |
| c zat u zo erg in de put dat niets u kon opvrolijken? | 1 | 2 | 3 | 4 | 5 |
| d voelde u zich kalm en rustig? | 1 | 2 | 3 | 4 | 5 |
| e voelde u zich energiek? | 1 | 2 | 3 | 4 | 5 |
| f voelde u zich neerslachtig en somber? | 1 | 2 | 3 | 4 | 5 |
| g voelde u zich uitgeblust? | 1 | 2 | 3 | 4 | 5 |
| h voelde u zich gelukkig? | 1 | 2 | 3 | 4 | 5 |
| i voelde u zich moe? | 1 | 2 | 3 | 4 | 5 |
-
10. Hoe vaak hebben uw **lichamelijke gezondheid** of **emotionele problemen** gedurende *de afgelopen 4 weken* uw sociale activiteiten (zoals bezoek aan vrienden of naaste familieleden) belemmerd?
 1 voortdurend
 2 meestal
 3 soms
 4 zelden
 5 nooit
-
11. Wilt u het antwoord kiezen dat het beste weergeeft hoe juist of onjuist u elk van de volgende uitspraken voor uzelf vindt.
- | | volkomen juist | groten-deels juist | weet ik niet | groten-deels onjuist | volkomen onjuist |
|--|----------------|--------------------|--------------|----------------------|------------------|
|--|----------------|--------------------|--------------|----------------------|------------------|

a	ik lijk gemakkelijker ziek te worden dan andere mensen	1	2	3	4	5
b	ik ben net zo gezond als andere mensen die ik ken	1	2	3	4	5
c	ik verwacht dat mijn gezondheid achteruit zal gaan	1	2	3	4	5
d	mijn gezondheid is uitstekend	1	2	3	4	5

Vragenlijst 3

Wij willen graag weten hoe u zich de laatste tijd heeft gevoeld. Wilt u bij elke vraag het cijfer vóór het antwoord dat het meest op u van toepassing is omcirkelen? Denk erom, het gaat bij deze vragen om **hoe u zich de laatste tijd (in het bijzonder de afgelopen 4 weken) voelde**, dus niet om hoe u zich in het verleden heeft gevoeld.

- | | | | |
|----|--|---|---|
| 1. | Ik voel me de laatste tijd gespannen | 1 | meestal |
| | | 2 | vaak |
| | | 3 | af en toe, soms |
| | | 4 | helemaal niet |
| 2. | Ik geniet nog steeds van de dingen waar ik vroeger van genoot. | 1 | zeker zo veel |
| | | 2 | niet helemaal zoveel |
| | | 3 | weinig |
| | | 4 | eigenlijk helemaal niet |
| 3. | Ik krijg de laatste tijd het angstige gevoel alsof er elk moment iets vreselijks zal gebeuren. | 1 | heel zeker en vrij erg |
| | | 2 | ja, maar niet zo erg |
| | | 3 | een beetje, maar ik maak me er geen zorgen over |
| | | 4 | helemaal niet |
| 4. | Ik kan lachen en de dingen van de vrolijke kant zien. | 1 | net zoveel als vroeger |
| | | 2 | niet zo goed meer nu |
| | | 3 | beslist niet zoveel als vroeger |
| | | 4 | helemaal niet |
| 5. | Ik maak me de laatste tijd ongerust. | 1 | heel erg vaak |
| | | 2 | vaak |
| | | 3 | af en toe |
| | | 4 | zelden of nooit |
| 6. | Ik voel me de laatste tijd opgewekt. | 1 | helemaal niet |
| | | 2 | niet vaak |
| | | 3 | soms |
| | | 4 | meestal |
| 7. | Ik kan de laatste tijd rustig zitten en me ontspannen. | 1 | zeker |
| | | 2 | meestal |

		3	niet vaak
		4	helemaal niet
8.	Ik voel me de laatste tijd alsof alles moeizamer gaat.	1	bijna altijd
		2	heel vaak
		3	soms
		4	helemaal niet
9.	Ik krijg de laatste tijd een soort benauwd, gespannen gevoel in mijn maag.	1	helemaal niet
		2	soms
		3	vrij vaak
		4	heel vaak
10.	Ik heb de laatste tijd geen interesse meer in mijn uiterlijk.	1	zeker
		2	niet meer zoveel als ik zou moeten
		3	mogelijk wat minder
		4	evenveel interesse als voorheen
11.	Ik voel me de laatste tijd rusteloos.	1	heel erg
		2	tamelijk veel
		3	niet erg veel
		4	helemaal niet
12.	Ik verheug me van te voren al op dingen.	1	net zoveel als vroeger
		2	een beetje minder dan vroeger
		3	zeker minder dan vroeger
		4	bijna nooit
13.	Ik krijg de laatste tijd plotseling gevoelens van angst of paniek.	1	zeer vaak
		2	tamelijk vaak
		3	niet erg vaak
		4	helemaal niet
14.	Ik kan van een goed boek genieten, of van een radio- of televisieprogramma.	1	vaak
		2	soms
		3	niet vaak
		4	heel zelden

Vragenlijst 4

In de volgende lijst wordt gevraagd naar de manier waarop u uw gezondheid ervaart. Wilt u bij elke vraag het cijfer omcirkelen vóór het antwoord dat het meest op u van toepassing is?

1.	Ik zorg goed voor mezelf wat betreft mijn gezondheid.	1	helemaal mee oneens
		2	gedeeltelijk mee oneens
		3	niet mee eens en niet mee oneens
		4	gedeeltelijk mee eens
		5	helemaal mee eens

2.	Hoe goed ik ook mijn best doe, mijn gezondheid is uiteindelijk niet zoals ik zou willen	1 helemaal mee oneens 2 gedeeltelijk mee oneens 3 niet mee eens en niet mee oneens 4 gedeeltelijk mee eens 5 helemaal mee eens
3.	Ik vind het moeilijk om goede oplossingen te bedenken voor de gezondheidsproblemen die zich bij mij voordoen.	1 helemaal mee oneens 2 gedeeltelijk mee oneens 3 niet mee eens en niet mee oneens 4 gedeeltelijk mee eens 5 helemaal mee eens
4.	Datgene wat ik onderneem om mijn gezondheid te verbeteren lukt goed.	1 helemaal mee oneens 2 gedeeltelijk mee oneens 3 niet mee eens en niet mee oneens 4 gedeeltelijk mee eens 5 helemaal mee eens
5.	Het lukt mij meestal de doelen te bereiken die ik mijzelf stel met het oog op mijn gezondheid.	1 helemaal mee oneens 2 gedeeltelijk mee oneens 3 niet mee eens en niet mee oneens 4 gedeeltelijk mee eens 5 helemaal mee eens
6.	Ik vind dat mijn inspanningen, om dat wat ik niet goed vind aan mijn gezondheid te veranderen, weinig effect hebben.	1 helemaal mee oneens 2 gedeeltelijk mee oneens 3 niet mee eens en niet mee oneens 4 gedeeltelijk mee eens 5 helemaal mee eens
7.	De plannen die ik maak om iets aan mijn gezondheid te doen, pakken bij mij meestal niet goed uit.	1 helemaal mee oneens 2 gedeeltelijk mee oneens 3 niet mee eens en niet mee oneens 4 gedeeltelijk mee eens 5 helemaal mee eens
8.	Ik ben even goed als anderen in staat om dingen voor mijn gezondheid te doen.	1 helemaal mee oneens 2 gedeeltelijk mee oneens 3 niet mee eens en niet mee oneens 4 gedeeltelijk mee eens 5 helemaal mee eens

Vragenlijst 5

Hieronder volgt een aantal uitspraken die gebruikt kunnen worden om aan te geven hoe u over uw tinnitusklachten denkt.

- | | |
|--|--|
| 1. Een verbetering van mijn klachten is grotendeels een kwestie van aanleg of geluk. | 1 helemaal mee eens
2 mee eens
3 enigszins mee eens
4 enigszins mee oneens
5 mee oneens
6 helemaal mee oneens |
| 2. Als mijn klachten verbeteren, heb ik dit toch vooral te danken aan mijn arts. | 1 helemaal mee eens
2 mee eens
3 enigszins mee eens
4 enigszins mee oneens
5 mee oneens
6 helemaal mee oneens |
| 3. Wat betreft het verloop van mijn klachten, kan ik alleen maar doen wat de dokter zegt. | 1 helemaal mee eens
2 mee eens
3 enigszins mee eens
4 enigszins mee oneens
5 mee oneens
6 helemaal mee oneens |
| 4. Het verloop van mijn klachten wordt in de eerste plaats bepaald door wat ik zelf doe. | 1 helemaal mee eens
2 mee eens
3 enigszins mee eens
4 enigszins mee oneens
5 mee oneens
6 helemaal mee oneens |
| 5. Dingen die mijn klachten doen verergeren, overkomen mij bij toeval. | 1 helemaal mee eens
2 mee eens
3 enigszins mee eens
4 enigszins mee oneens
5 mee oneens
6 helemaal mee oneens |
| 6. Ik heb het verloop van mijn klachten in eigen hand. | 1 helemaal mee eens
2 mee eens
3 enigszins mee eens
4 enigszins mee oneens
5 mee oneens
6 helemaal mee oneens |
| 7. Om verergering van mijn klachten te voorkomen is het goed regelmatig de arts te raadplegen. | 1 helemaal mee eens
2 mee eens
3 enigszins mee eens |

- | | |
|---|------------------------|
| | 4 enigszins mee oneens |
| | 5 mee oneens |
| | 6 helemaal mee oneens |
| 8. Of mijn klachten verbeteren, is een kwestie van toevallige gebeurtenissen. | 1 helemaal mee eens |
| | 2 mee eens |
| | 3 enigszins mee eens |
| | 4 enigszins mee oneens |
| | 5 mee oneens |
| | 6 helemaal mee oneens |
| 9. Het ligt vooral aan mezelf, of mijn klachten zullen verbeteren. | 1 helemaal mee eens |
| | 2 mee eens |
| | 3 enigszins mee eens |
| | 4 enigszins mee oneens |
| | 5 mee oneens |
| | 6 helemaal mee oneens |

Vragenlijst 6

De volgende vragen hebben betrekking op uw levenshouding, dus op de manier waarop u in het algemeen tegen het leven aankijkt. Wilt u bij elke vraag of uitspraak het cijfer omcirkelen dat het meest bij u past?

- | | |
|---|---------------------------|
| 1. In tijden van onzekerheid verwacht ik er gewoonlijk het beste van. | 1 helemaal eens |
| | 2 eens |
| | 3 niet eens / niet oneens |
| | 4 oneens |
| | 5 helemaal oneens |
| 2. Als er voor mij ook maar iets verkeerd kan gaan, gebeurt dat ook. | 1 helemaal eens |
| | 2 eens |
| | 3 niet eens / niet oneens |
| | 4 oneens |
| | 5 helemaal oneens |
| 3. Ik bekijk alles altijd van de zonnige kant. | 1 helemaal eens |
| | 2 eens |
| | 3 niet eens / niet oneens |
| | 4 oneens |
| | 5 helemaal oneens |
| 4. Ik ben altijd optimistisch over mijn toekomst. | 1 helemaal eens |
| | 2 eens |
| | 3 niet eens / niet oneens |
| | 4 oneens |
| | 5 helemaal oneens |

- | | | | |
|----|---|---|-------------------------|
| 5. | Ik verwacht zelden dat de dingen gaan zoals ik graag wil. | 1 | helemaal eens |
| | | 2 | eens |
| | | 3 | niet eens / niet oneens |
| | | 4 | oneens |
| | | 5 | helemaal oneens |
| 6. | Alles gaat altijd anders dan ik wil. | 1 | helemaal eens |
| | | 2 | eens |
| | | 3 | niet eens / niet oneens |
| | | 4 | oneens |
| | | 5 | helemaal oneens |
| 7. | Voor mij geldt "achter de wolken schijnt de zon". | 1 | helemaal eens |
| | | 2 | eens |
| | | 3 | niet eens / niet oneens |
| | | 4 | oneens |
| | | 5 | helemaal oneens |
| 8. | Ik reken er zelden op dat mij iets goeds overkomt. | 1 | helemaal eens |
| | | 2 | eens |
| | | 3 | niet eens / niet oneens |
| | | 4 | oneens |
| | | 5 | helemaal oneens |
-

Vragenlijst 7

Veel mensen vergelijken zichzelf af en toe met andere mensen of denken terug aan eigen ervaringen van vroeger. Door u de volgende vragen te stellen, willen we graag te weten komen hoe belangrijk deze vergelijkingen voor u zijn. Zou u daarom voor de volgende stellingen willen aangeven in hoeverre u het er mee eens bent?

- | | | | |
|----|---|---|-------------------------|
| 1. | Ik praat graag met anderen over gemeenschappelijke opvattingen of ervaringen. | 1 | helemaal eens |
| | | 2 | eens |
| | | 3 | niet eens/ niet oneens |
| | | 4 | oneens |
| | | 5 | helemaal oneens |
| 2. | Het gaat nu slechter met mij dan voordat ik tinnitus had. | 1 | helemaal eens |
| | | 2 | eens |
| | | 3 | niet eens / niet oneens |
| | | 4 | oneens |
| | | 5 | helemaal oneens |
| 3. | De tinnitus heeft mijn leven ondragelijk gemaakt. | 1 | helemaal eens |
| | | 2 | eens |
| | | 3 | niet eens / niet oneens |
| | | 4 | oneens |
| | | 5 | helemaal oneens |
| 4. | Ik probeer er vaak achter te komen wat andere mensen met tinnitus | 1 | helemaal eens |

- | | |
|---|---|
| denken en doen. | 2 eens
3 niet eens / niet oneens
4 oneens
5 helemaal oneens |
| 5. Ik denk vaak over hoe het met me was voordat ik tinnitus had. | 1 helemaal eens
2 eens
3 niet eens / niet oneens
4 oneens
5 helemaal oneens |
| 6. Wanneer het slecht gaat, denk ik aan andere mensen met wie het beter gaat. | 1 helemaal eens
2 eens
3 niet eens / niet oneens
4 oneens
5 helemaal oneens |
| 7. Nu is mijn leven niet anders dan voordat ik tinnitus had. | 1 helemaal eens
2 eens
3 niet eens / niet oneens
4 oneens
5 helemaal oneens |

Vragenlijst 8

Hieronder vindt u een lijst met diverse uitspraken van mensen met een langdurige ziekte. Wij willen u vragen aan te geven in welke mate u het met deze uitspraken eens bent. U doet dit door één van de antwoordmogelijkheden achter de uitspraak te omcirkelen.

-
- | | |
|--|--|
| 1. Door mijn ziekte mis ik de dingen die ik het liefst doe. | 1 niet
2 een beetje
3 in sterke mate
4 helemaal |
| 2. Ik kan de problemen, die mijn ziekte met zich mee brengt aan. | 1 niet
2 een beetje
3 in sterke mate
4 helemaal |
| 3. Ik heb met de ziekte leren leven. | 1 niet
2 een beetje
3 in sterke mate
4 helemaal |
| 4. Het omgaan met mijn ziekte heeft me sterker gemaakt. | 1 niet
2 een beetje
3 in sterke mate |

	4	helemaal
5. Mijn ziekte beheerst mijn leven.	1	niet
	2	een beetje
	3	in sterke mate
	4	helemaal
6. Ik heb een heleboel geleerd door mijn ziekte.	1	niet
	2	een beetje
	3	in sterke mate
	4	helemaal
7. Mijn ziekte geeft me soms het gevoel nutteloos te zijn.	1	niet
	2	een beetje
	3	in sterke mate
	4	helemaal
8. Door mijn ziekte ben ik het leven meer gaan waarderen.	1	niet
	2	een beetje
	3	in sterke mate
	4	helemaal
9. Mijn ziekte houdt me ervan af om te doen wat ik graag zou willen doen.	1	niet
	2	een beetje
	3	in sterke mate
	4	helemaal
<hr/>		
10. Ik heb de beperkingen van mijn ziekte leren aanvaarden.	1	niet
	2	een beetje
	3	in sterke mate
	4	helemaal
11. Achteraf gezien, hebben er door mijn ziekte ook positieve veranderingen in mijn leven plaats gevonden.	1	niet
	2	een beetje
	3	in sterke mate
	4	helemaal
12. Mijn ziekte beperkt me in alle dingen die belangrijk voor me zijn.	1	niet
	2	een beetje
	3	in sterke mate
	4	helemaal
13. Ik kan mijn ziekte goed accepteren.	1	niet
	2	een beetje
	3	in sterke mate
	4	helemaal
14. Ik denk dat ik de problemen van mijn ziekte aan kan, zelfs als de	1	niet

- | | |
|---|--|
| ziekte erger wordt. | 2 een beetje
3 in sterke mate
4 helemaal |
| 15. Door mijn ziekte voel ik me vaak hulpeloos. | 1 niet
2 een beetje
3 in sterke mate
4 helemaal |
| 16. Mijn ziekte heeft me geholpen te realiseren wat belangrijk is in het leven. | 1 niet
2 een beetje
3 in sterke mate
4 helemaal |
| 17. Ik kan goed met mijn ziekte omgaan. | 1 niet
2 een beetje
3 in sterke mate
4 helemaal |
| 18. Mijn ziekte heeft mij geleerd meer van het moment te genieten. | 1 niet
2 een beetje
3 in sterke mate
4 helemaal |
-

Vragenlijst 9

In deze vragenlijst willen wij graag weten in welke mate het tinnitusspreekuur en de adviezen die u hier hebt gekregen u hebben geholpen. Wanneer u een of meer van deze adviezen heb gekregen en opgevolgd, wilt u dan achter het betreffende advies aangeven of dit het geval was?

Welke adviezen hebt u tijdens het eindgesprek van het tinnitusspreekuur gekregen?

		nee	ja
Advies 1	deelname aan de algemene informatiebijeenkomst	1	2
Advies 2	hoortoestelaanpassing	1	2
Advies 3	experimentele behandeling d.m.v. Phase Out	1	2
Advies 4	deelname aan de tinnitusgroepsbijeenkomsten (met begeleiding van mw. Dob en mw. Luinge)	1	2
Advies 5	individuele begeleiding via maatschappelijk werk	1	2
Advies 6	begeleiding/behandeling via de GGZ	1	2
Advies 7	fysiotherapie	1	2

Welke van de gegeven adviezen hebt u opgevolgd?

		nee	ja
Advies 1	deelname aan de algemene informatiebijeenkomst	1	2
Advies 2	hoortoestelaanpassing	1	2
Advies 3	experimentele behandeling d.m.v. Phase Out <i>(geen aanvullende vragen voor dit advies)</i>	1	2
Advies 4	deelname aan de tinnitusgroepsbijeenkomsten (met begeleiding van mw. Dob en mw. Luinge)	1	2
Advies 5	individuele begeleiding via maatschappelijk werk	1	2
Advies 6	begeleiding/behandeling via de GGZ	1	2
Advies 7	fysiotherapie	1	2

Wilt u nu voor ieder advies dat u hebt opgevolgd hieronder de bijbehorende vragen invullen? Kies hiervoor de nummers van de door u gevolgde adviezen uit bovenstaande lijst en vul hieronder de vragenlijsten met dezelfde nummers in.

Advies 1: Deelname aan de algemene informatiebijeenkomst

	geheel mee oneens	deels mee oneens	niet eens of oneens	deels mee eens	geheel mee eens
1. Ik heb voldoende informatie gekregen over tinnitus.	1	2	3	4	5
2. Er was voldoende gelegenheid voor het stellen van vragen.	1	2	3	4	5
3. Ik heb ervaringen kunnen uitwisselen met andere patiënten.	1	2	3	4	5
4. De bijeenkomst heeft mij geholpen mijn klachten beter te begrijpen.	1	2	3	4	5
Sinds het bijwonen van de informatiebijeenkomst	geheel mee oneens	deels mee oneens	niet eens of oneens	deels mee eens	geheel mee eens
5. heb ik meer controle over mijn klachten.	1	2	3	4	5
6. lukt het me beter de tinnitus naar de achtergrond te verplaatsen.	1	2	3	4	5

Determinants of tinnitus' impact in Quality of Life

7.	word ik minder afgeleid door mijn tinnitus.	1	2	3	4	5
8.	kan ik me beter concentreren.	1	2	3	4	5
9.	hou ik me minder met de tinnitus bezig.	1	2	3	4	5
10.	kan ik beter tot rust komen / me beter ontspannen	1	2	3	4	5

Advies 2: Hoortoestelaanpassing

NB: in de vragen wordt steeds de term "hoortoestellen" gebruikt. Wanneer u één hoortoestel gebruikt, vult u dan de vraag in voor dit ene toestel.

- | | | | |
|----|---|-------|---|
| 1. | Hoeveel uur per dag heeft u de afgelopen 14 dagen de hoortoestellen gemiddeld gebruikt? | _____ | uren |
| 2. | Hoe verandert uw tinnitus wanneer u het hoortoestel aanzet ? | 1 | de tinnitus wordt zachter |
| | | 2 | de tinnitus blijft gelijk |
| | | 3 | (ga door naar vraag 4)
de tinnitus wordt harder |
| 3. | Na hoeveel tijd treedt de verandering op? | 1 | onmiddellijk |
| | | 2 | binnen één minuut |
| | | 3 | na 1 tot 5 minuten |
| | | 4 | na 5 tot 15 minuten |
| | | 5 | na 15 tot 60 minuten |
| | | 6 | na 1 tot 4 uur |
| | | 7 | na 4 tot 8 uur |
| | | 8 | na 8 tot 24 uur |

4. Hoe verandert uw tinnitus wanneer u het hoortoestel **uitzet**?
- 9 na meer dan 24 uur
- 1 de tinnitus wordt zachter
- 2 de tinnitus blijft gelijk
(ga door naar vraag 6)
- 3 de tinnitus wordt harder
5. Na hoeveel tijd treedt deze verandering op?
- 1 onmiddellijk
- 2 binnen één minuut
- 3 na 1 tot 5 minuten
- 4 na 5 tot 15 minuten
- 5 na 15 tot 60 minuten
- 6 na 1 tot 4 uur
- 7 na 4 tot 8 uur
- 8 na 8 tot 24 uur
- 9 na meer dan 24 uur

Als uw tinnitus uit meerdere componenten bestaat, beantwoord dan de volgende vragen voor de meest storende component.

6. Kunt u de gemiddelde **luidheid** van uw tinnitus aangeven op een schaal van 0 tot 100 (waarbij 0 'geen tinnitus' aangeeft en 100 'erg sterk')?
- MET** hoortoestellen: _____
- ZONDER** hoortoestellen: _____
7. Hoeveel **last** heeft u gemiddeld genomen van uw tinnitus op een schaal van 0 tot 100 (waarbij 0 'geen last' aangeeft en 100 'erg veel last')?
- MET** hoortoestellen: _____
- ZONDER** hoortoestellen: _____
8. Kun u aangeven hoe goed uw **gehoor** gemiddeld genomen is op een schaal van 0 tot 100 (waarbij 0 'erg slecht' aangeeft en 100 'erg goed')?
- MET** hoortoestellen: _____
- ZONDER** hoortoestellen: _____

		geheel mee oneens	deels mee oneens	niet eens of oneens	deels mee eens	geheel mee eens
Wanneer ik overdag mijn hoortoestellen gebruik						
9.	word ik minder afgeleid door mijn tinnitus.	1	2	3	4	5
10.	hoor ik de tinnitus niet meer.	1	2	3	4	5
11.	wordt mijn tinnitus naar de achtergrond gedrukt.	1	2	3	4	5
12.	kom ik 's avonds gemakkelijker in slaap.	1	2	3	4	5
13.	kan ik me beter concentreren.	1	2	3	4	5
14.	voel ik me minder vermoeid.	1	2	3	4	5
15.	klinkt mijn tinnitus minder indringend.	1	2	3	4	5

Determinants of tinnitus' impact in Quality of Life

16.	hou ik me minder met de tinnitus bezig.	1	2	3	4	5
17.	slaap ik 's nachts beter door.	1	2	3	4	5
18.	kan ik beter tot rust komen / me beter ontspannen.	1	2	3	4	5
19.	heb ik 's nachts minder last van de tinnitus.	1	2	3	4	5

Advies 4:	Deelname aan de tinnitusgroepsbijeenkomsten (met begeleiding van mw. Dob en mw. Luinge)
------------------	--

		geheel mee oneens	deels mee oneens	niet eens of oneens	deels mee eens	geheel mee eens
1.	Ik heb voldoende informatie gekregen over tinnitus.	1	2	3	4	5
2.	Er was voldoende gelegenheid voor het stellen van vragen.	1	2	3	4	5
3.	Er was voldoende begrip en aandacht voor mijn klachten.	1	2	3	4	5
4.	Ik heb ervaringen kunnen uitwisselen met andere patiënten.	1	2	3	4	5

Determinants of tinnitus' impact in Quality of Life

5.	De bijeenkomsten hebben mij geholpen mijn klachten beter te begrijpen.	1	2	3	4	5
6.	De bijeenkomsten hebben mij geholpen beter met mijn klachten om te gaan.	1	2	3	4	5
		geheel mee oneens	deels mee oneens	niet eens of oneens	deels mee eens	geheel mee eens
Door het bijwonen van de groepsbijeenkomsten						
7.	voel ik me gerustgesteld over mijn klachten.	1	2	3	4	5
8.	heb ik meer controle over mijn klachten.	1	2	3	4	5
9.	lukt het me beter de tinnitus naar de achtergrond te verplaatsen.	1	2	3	4	5
10.	word ik minder afgeleid door mijn tinnitus.	1	2	3	4	5
11.	kom ik 's avonds gemakkelijker in slaap.	1	2	3	4	5
12.	kan ik me beter concentreren.	1	2	3	4	5
13.	voel ik me minder vermoeid.	1	2	3	4	5
14.	hou ik me minder met de tinnitus bezig.	1	2	3	4	5
15.	slaap ik 's nachts beter door.	1	2	3	4	5
16.	kan ik beter tot rust komen / me beter ontspannen.	1	2	3	4	5
17.	denk ik minder pijnlijk of negatief over mijn tinnitus	1	2	3	4	5
18.	heb ik minder moeite mijn omgeving over mijn klachten te informeren	1	2	3	4	5

Advies 5 & 6: Individuele begeleiding via het maatschappelijk werk van het UMCG of via de GGZ
--

		geheel mee oneens	deels mee oneens	niet eens of oneens	deels mee eens	geheel mee eens
1.	Ik heb voldoende informatie gekregen over tinnitus.	1	2	3	4	5
2.	Er was voldoende begrip en aandacht voor mijn klachten.	1	2	3	4	5
3.	De maatschappelijk werker / psycholoog heeft mij geholpen	1	2	3	4	5

mijn klachten beter te begrijpen.

Door de begeleiding via het maatschappelijk werk of de GGZ		geheel mee oneens	deels mee oneens	niet eens of oneens	deels mee eens	geheel mee eens
4.	kan ik nu beter met mijn klachten omgaan.	1	2	3	4	5
5.	heb ik meer controle over mijn klachten.	1	2	3	4	5
6.	lukt het me beter de tinnitus naar de achtergrond te verplaatsen.	1	2	3	4	5
7.	word ik minder afgeleid door mijn tinnitus.	1	2	3	4	5
8.	kom ik 's avonds gemakkelijker in slaap.	1	2	3	4	5
9.	kan ik me beter concentreren.	1	2	3	4	5
10.	voel ik me minder vermoeid.	1	2	3	4	5
11.	klinkt mijn tinnitus minder indringend.	1	2	3	4	5
12.	slaap ik 's nachts beter door.	1	2	3	4	5
13.	kan ik beter tot rust komen / me beter ontspannen.	1	2	3	4	5

Advies 7: Fysiotherapie

Door de fysiotherapie		geheel mee oneens	deels mee oneens	niet eens of oneens	deels mee eens	geheel mee eens
1.	kan ik nu beter met mijn klachten omgaan.	1	2	3	4	5
2.	heb ik meer controle over mijn klachten.	1	2	3	4	5
3.	lukt het me beter de tinnitus naar de achtergrond te verplaatsen.	1	2	3	4	5
4.	word ik minder afgeleid door mijn tinnitus.	1	2	3	4	5
5.	hoor ik de tinnitus niet meer.	1	2	3	4	5
6.	kom ik 's avonds gemakkelijker in slaap.	1	2	3	4	5
7.	kan ik me beter concentreren.	1	2	3	4	5
8.	voel ik me minder vermoeid.	1	2	3	4	5
9.	klinkt mijn tinnitus minder indringend.	1	2	3	4	5
10.	hou ik me minder met de tinnitus bezig.	1	2	3	4	5
11.	slaap ik 's nachts beter door.	1	2	3	4	5
12.	kan ik beter tot rust komen / me beter ontspannen.	1	2	3	4	5

Vragenlijst 10

- Geslacht

1 man
2 vrouw
- Geboortjaar

- Datum van invullen vragenlijst

__ - __ - ____ (dag-maand-jaar)
- Heeft u na het tinnitusspreekuur elders hulp gezocht voor uw tinnitus?
Graag aangeven waar dit was, welk(e) onderzoek/behandeling en het effect ervan:

Hieronder is ruimte voor opmerkingen over de vragenlijst: